F.No. 23/62/2022-M-1
Government of India
Ministry of Culture

Shastri Bhawan, New Delhi.
Dated: 11th October, 2022.

Subject: Inviting comments / input from stakeholders on the "Reimagining Museums in India : A Handbook of Best Practices".-reg.

       The Museum Division of Ministry of Culture has published a handbook(PDF attached) for museums in India following a summit on Reimagining Museums in India. The hand book provides guidance to museum professionals on the development and management of museums taking a cue from the examples and best practices from around the world. The Ministry of Culture invites inputs/suggestions of various stakeholders on the above said handbook in writing so as to reach by **28.10.2022** to **"The Under Secretary (Museum-1), Room No. 210 D Wing, Shastri Bhawan, Dr. Rajendra Prasad Road, New Delhi-110001"** and soft copy may be sent to **bestpractices.mocmuseums@gmail.com**.

(Bhoopendra Singh Bisht)
Under Secretary to the Government of India.

Attached: PDF of "Reimagining Museums in India : A Handbook of Best Practices"

REIMAGINING MUSEUMS IN INDIA
A HANDBOOK OF BEST PRACTICES

संस्कृति मंत्रालय
MINISTRY OF
CULTURE

सत्यमेव जयते

Reimagining Museums in India
A Handbook of Best Practices

A resource tool prepared by

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G. Kishan Reddy
Minister of Culture, Tourism and
Development of North Eastern Region
Government of India

It is my privilege to present this handbook, built upon the discussions and knowledge sharing that emerged earlier this year at the summit 'Reimagining Museums in India', to the museum professionals and enthusiasts of our country. The global summit brought together professionals in the field of museums from across the world, helped share the best practices in Museology, foster networks, encourage strategic partnerships and create a framework to steer museum development and renewal.

As an outcome of the collective insights shared, a team of researchers within the Ministry took on the challenging task to compile this handbook. It provides a basic guidance in the essential matters of how to build and run a museum. The Ministry of Culture works to sustain and promote museums, which are the safe houses and custodians of the heritage and the ethos of our civilization, and one of the most important cultural institutions in the country.

I am pleased that the Ministry of Culture has taken the lead in producing a handbook of best practices in the museum field, and I congratulate the research team on their success in bringing out their work in a published and user-friendly volume.

The volume is aimed to be helpful to museum professionals and people working in the cultural space. I hope that more such guidebooks will be produced by the Ministry in the future, so that young citizens of India are inspired to take up the museum profession, and to work to protect and preserve our glorious cultural heritage. In my opinion, that is one of the greatest tributes we can pay to our country in the year of *Azadi ka Amrit Mahotsav*.

(G. Kishan Reddy)

Message from Secretary Culture

It gives me great joy to offer this volume to the people who are generally invested in culture, and especially to those who work in, or aspire to do so, in museums, which are repositories of our tangible – as well as, increasingly, our intangible - cultural heritage. While museums can be universal or local in scope, there is no denying the fact that museum collections inculcate national pride and acquaint citizens with their interconnected histories, and that they are some of the most powerful educators in the promotion of awareness and experience of the great Indian heritage. In an era of globalization, museums explore, uphold, and project specificities of local and national cultures. As this nation celebrates the Azadi ka Amrit Mahotsav with a view to commemorating the 75 years of progressive India, the glorious history of its people, culture, and achievements, the time to rethink the function of museums becomes even more pertinent. In this national reawakening, in which 1.3 billion Indians – especially the young – rediscover their evolutionary journey and sociocultural identity, museums will play a significant role in showcasing this cultural heritage.

In recent times, creative ways of curation, innovative programming, lectures, workshops, and new modalities of interpretation have made museums more accessible, along with preserving protecting and perpetuating our shared heritage. Indeed, museums today are more crucial than ever before, as visual communication has become more intrinsic to the younger generation. It was with this vision that we organized a Global Museum Summit – *Reimagining Museums in India* – in February 2022 that brought together many of the world's museum leaders. Through this path-breaking Global Summit, the Ministry of Culture aimed to facilitate the processes of understanding the best approach to developing India's museums, forging strategic partnerships between Indian and international institutions, and drawing a master plan for the renewal of Indian museums to make them truly world-class. Back then, we had promised to come up with a standard operating procedure for developing the finest museums worldwide. This manual is the first product of that promise, and, hopefully, not the last. As we proactively and collectively explore developing our museums as one of the most critically important tools of dealing with a world ravaged by the Covid-19 pandemic, it will be our aim to keep producing similar handbooks that will help share and disseminate knowledge and practical advice in a field that holds out so much promise for our shared future.

Shri Govind Mohan, IAS
Secretary to the Government of India, Ministry of Culture

Message from Joint Secretary (Museums)

In a world left in disarray by the pandemic, people look towards museums and cultural spaces as lifeline for social connection. The moment is ripe with opportunity to dust off obscurity, initiate deeper dialogues with relics of the bygone era, reflect on our cultural heft and showcase our appetite for art. Museums contribute towards a critical understanding of our heritage and identity, and our ability to share this civilizational wealth with the present and future generations.

It is with much enthusiasm that we present this handbook on museum practices that can be referred to for guidance in making, running, and upgrading museums. The idea of bringing out this hand book emanated from the conversations and knowledge-sharing fostered the Global Summit – 'Reimagining Museums in India' – organized by the Ministry of Culture in February 2022, and attended by some of the best minds in the museum space in the country and across the world. It was felt that, in an India taking confident strides in the twenty-first century, its museums needed to be reimagined, and their functions recalibrated, so that their curatorial, conservation, and educational practices could be in sync with the rapidly changing needs of our time.

As the Ministry of Culture is tasked with the responsibility of building, supporting, and promoting museums and sustaining the museum movement in this great democratic country, it is incumbent on us to give some structure to the conversations generated by the Summit and present them in a user-friendly format to the museum community. This handbook is by no means an exhaustive resource, but a firm first step in this direction. This effort has been driven a team of museum professionals and young scholars with invaluable advice from museum experts at home and abroad. They have worked tirelessly in the past few months to prepare this handbook. If the museum community worldwide finds this handbook of use, our effort will not have been in vain.

Smt. Lily Pandeya
Joint Secretary to the Government of India
Ministry of Culture (Museums Division)

A Note from the Secretary and Curator, Victoria Memorial Hall

It has been a privilege and honour for me to be part of a team that worked through the past few months to bring this volume to light, and I am deeply grateful to the Ministry of Culture for their kindness in giving me this opportunity to be associated with it. I consider myself as sort of an accidental museum person, having been a teacher of history most of my life, and then suddenly thrust a few years ago in the position of the head of one of India's most popular museums, the Victoria Memorial Hall. This, however, placed me along a new, continuing, and profoundly enriching learning curve. I have therefore tried to learn new lessons of public history and visitor engagement from my colleagues and peers in my museum and many others, as well as from visitors themselves, and also a wide range of interested people that are impossible to club together in the rather anonymous category of 'stakeholders'. The global summit *Reimagining Museums in India* last February – which I had the good fortune of following closely – was a landmark point in my new learning career and presented all of us with an opportunity to take stock of the advancements as well as challenges in the museum field worldwide and distil them into a guidebook of friendly advice. This volume is the product of that thought, a start rather than a final offering, laying out a basic roadmap while also making clear that such efforts are always, by their very nature, a work-in-progress. I have been fortunate in having a hugely supportive Secretary and Joint Secretary in the Ministry of Culture to steer this project through, and to work with a passionate and dedicated group of young researchers. It is a humble beginning, but one that we very much hope will be the harbinger of more such things to come.

Jayanta Sengupta
Secretary and Curator
Victoria Memorial Hall, Kolkata

Introduction

Museums belong to a space that transcends local, regional, national, and global borders, because at the end of the day they are home to artifacts and objects that make up a collectively shared, universal heritage of humanity. At a national level, they do function as a repository of a nation's culture, since they contain explicit examples of the proof of the development of a country's culture and heritage over a period of time. But, since civilizations are porous and permeable, most artifacts of even national museums are the nuts and bolts of connected histories shared by multiple cultures and shaped by diverse strands. All museums – local, regional, national – thus share some elements of universality.

The strengthening of the India's museums is an important activity covered under the ambit of the Ministry of Culture. Some of the most important Museums of India like the National Museum, New Delhi, the Indian Museum and the Victoria Memorial Hall, Kolkata, the Salar Jung Museum, Hyderabad, the Allahabad Museum, the Indira Gandhi Rashtriya Manav Sangrahalay (IGRMS) Bhopal, and the three National Galleries of Modern Art at New Delhi, Mumbai, and Bengaluru, respectively function under the control of the Ministry of Culture in various capacities. Apart from these, the Archaeological Survey of India also has site museums at forty-four locations spread throughout the country in proximity to important archaeological sites.

Over and above these, the Ministry of Culture also supports museums throughout the country, which are run by other Ministries of the Government of India, state governments, civic bodies and local administrations, civil society organizations, heritage trusts, universities and other educational institutions, even private entities. Hundreds of new and existing museum projects all over the country has been supported and funded by the Ministry of Culture's landmark 'Museum Grants Scheme,' which has over the years helped to sustain a museum movement in India. Such support ultimately plays a critical role in the preservation and protection of India's tangible as well as intangible cultural heritage.

In February 2022, an international Museum Summit – Reimagining Museums in India – was hosted by the Ministry of Culture in partnership with Bloomberg. At this summit, speakers from around the world were invited to engage with nationally and internationally renowned museum professionals, share the best practices in Museology,

foster networks, encourage strategic partnerships, and create a framework to steer museum development and renewal.

The following document will be addressing the topics that were discussed at the summit and using them to create a Standard Operating Procedure or a framework for those wanting direction on establishing and managing museums. During the summit it was realized that there is not such document in India and that it is necessary. There are documents and surveys conducted by the government that highlight the problem areas and what can be done about those specific problems areas but there is not document that provides a basic checklist of things to be kept in mind when founding and maintaining a museum.

The four main topics addressed at the Summit were Architecture and Functional Needs, Management, Collections (including Curation & Conservation practices), and Education and Audience Engagement. The key objectives going into the summit were (i) to share global best practices for museum development and management; (ii) to understand the current needs of Indian museums; (iii) to foster strategic partnerships between Indian and international museums; and (iv) to develop a blueprint for renewal of museums. A key focus of the conference was how some of the key issues such as digitization of archives, the accessibility of collections, the management and conservation of collections was exacerbated by the onset of the global pandemic. These problems needed to be addressed in detail; some museums found patchwork mechanisms to tide themselves over while others excelled and created a space for themselves in the developing field of museums in the digital and physical sectors. With this focus in mind, each of the speakers spoke on the key problems that affected museums, their development, and their functionality, especially in a world still struggling hard to come out of Covid.

This document uses the discussions and the takeaways from the Summit along with the 14-point programme on museums reform established by the Ministry of Culture in 2010 to create such a standard operating procedure. It is further supplemented by recommendations of the Comptroller and Accountant-General of India on the preservation of monuments and antiquities, as well as Parliamentary reports on the development and conservation of museums and archaeological sites. Finally, the information on how to make appropriate curatorial proposals for government grants like the Museum Grant Scheme (MSG) and the Scheme for the Promotion of the Culture of Science (SPOCS) are defined here for those aspiring to apply for these grants.

The Museum Grants scheme of the Ministry considers several institutions within its purview. These are: "(a) museums having collections of Antiquities, Numismatics, Paintings, Ethnological collections, Folk art and others including Art & Crafts, Textiles, Stamps, Etc., (b) Online Virtual Museum displaying in any or all of the above disciplines and (c) Theme based museums (d) Virtual Experiential Museums (VEM) (e) Projects of National Importance." It is hoped that this document can act as a useful resource for people trying to establish new museums in India, upgrade older museum spaces, and introduce international standards, while following these criteria.

For all the commonalities of vision and objectives, India's museums also encompass a broad range in terms their nature – universal museums, anthropological museums, art museums, single theme museums, site museums, etc. – as well as in terms of size, location, staff strength, theme, core constituency, and funding scenarios. This is natural, given the size of the country, and the diversity of people these museums cater to, and also the plurality of initiatives that sustain them. While taking note of these differences, this document seeks to create a primer, a basic toolkit of good practices in the varied segments of the museum enterprise, especially in the critically important areas of building and collection management, conservation and curatorial practices, education and outreach in the physical and digital modes, and general management. It is more in the nature of a resource tool than of a bible or a manual, and the museums will no doubt need to customize it and develop a template that will be specific to their mission and vision, ambitions, and resources. But it is hoped that this document will provide useful reference points and general guidance at various points in their evolving trajectories.

ARCHITECTURE AND FUNCTIONAL NEEDS

By Peter Kuttner FAIA https://www.architects.org/stories/saving-history

Museum Architecture has become an increasingly important part of the museum experience. Recently, the more contemporary museums and collections are focusing on architecture being a big draw for museums. The structure itself, then, has become one of the most important features in the planning stage of the museum. People visit museums

like the Metropolitan Museum of Art, New York, the Uffizi, Florence, the Guggenheim, New York and the Louvre, Paris for their architecture as much as the collections that they house.

A museum project in a completely new building or space needs to be planned around the collection that exists, while also making allowances for the expansion of the collection and the purview of the museum. A museum in a space that already exists (including, but not limited to, historic buildings, parks, private homes, or even previously functional structures like warehouses or railway stations) needs to be able to adapt to the space while also accommodating essential utilities.

It then becomes increasingly obvious that the first step in the creation of a museum and its architecture is defining the museum's collection. What is it that the museum will showcase and how? Defining the collection is subjective and doing this will help determine the kind of architecture needed to house it. Some collections will need new spaces with contemporary designs, while others will need old buildings repurposed for the need of their collection. For example, Princely collections (or personal collections belonging to erstwhile royalty and nobility) led to some of the first museums, being housed in royal palaces that were then converted into museums such as the collection at Louvre or Versailles. These places then developed their distinctive identity as cultural spaces for the public, as their collections expanded. Therefore, collections remain the central factor in determining the narrative and theme of the museum which ultimately help define its architecture.

Facade of National Museum, New Delhi

The Victoria Memorial Hall, Kolkata

Museums of all kinds need to consider collaboration with different governmental and non-governmental organizations for the land. In every kind of museums there will need to be negotiations with the local authorities and government bodies over the space. Whether it is organizations like the local Municipal Corporations over the use of a specific piece of land or working with the Archaeological Survey of India (ASI) or the State Archaeological Boards in a historical building that has been re-purposed to become a museum. These negotiations take time and should be a very important factor in the development of the museum.

Museums can vary considerably in size, type, and purpose; therefore, it is important to be able to narrow down the particular features and context for the project as concepts evolve. Some museums employ large number of staff, qualified experts who curate, manage and conserve the collections. Other museums, however, may require very few staff to oversee the exhibits.

While there is no standard formula for space planning and areas for a museum, due to their variations, much of the requirements will come from the museum's narrative, type of collection, purpose and so on. It is important to understand the museum's mission and create an interesting layout for the collections.

The things to be kept in mind as one builds the overall structure:

- Does it fit the theme?
- Does the architecture blend in with the city/ surroundings?
- Is the architecture aesthetically pleasing? (Interesting architecture has the ability to bring people back for visits)
- Does the architecture meld with the exhibition space?
- Does it incorporate the needs of its visitors? (Accessibility for children, old people)

Welcoming visitors within the first few feet of a museum should be one of its biggest priorities. It is very helpful to have some directional signage that leads people to different sections or exhibits and provides information about current activities in the building. Museums are typically designed with clear flow paths so that visitors can easily find their way around, while also providing plenty of places where they are free to wander and explore at will.

The setting-up of temporary exhibitions and museums requires a careful designing of spaces and an arrangement of works curated in every single detail for offering the public an engaging and memorable experience. Communication within the museum must use clearly intelligible captions – preferably in multiple languages – to allow each visitor

The gardens of the Victoria Menmorial Hall campus, as seen from the top

The Indian Museum, Kolkata

to decode the exhibited works and interpret them according to their own cultural and experiential background. In addition to, information on the works on display, museum signage must also provide suggestions or recommendations on the visitor's itinerary so that everyone can adjust it to their liking by selecting the artists or themes of greatest interest. Finally, the areas dedicated to reception (refreshment and relaxation areas, shops and ticket offices) should not be neglected; in addition to having an important functional role, they improve the experience inside the exhibition space, allowing the visitor to rest and replenish their experience as they carry on with their museum visit.

To best combine architectural and functional needs, setting up a museum calls for differentiated and complementary expertise, including visual and multimedia communication, museography, lighting and interior design. (Museography is essentially defined as the practical or applied aspect of museology, that is to say the techniques which have been developed to fulfil museum operations, in particular with regard to the planning and fitting out of the museum premises, conservation, restoration, security and exhibition.) Those who set up an exhibition should consider these aspects for making the most of the exhibition space and offering the public an interesting and educational experience. It is important not only to provide clear and easily understandable information on the individual works on display, but to offer interpretative keys that allow the visitor to build a broader overall view. In this sense, the written word used in captions, on information panels and in paper guides can be supplemented by different

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The Salar Jung Museum, Hyderabad

and complementary forms of communication. Architectural elements designed ad hoc, audio installations, interactive multimedia devices and augmented reality applications can promote a multi-sensory and participatory learning process.

While there is no standard formula for museum design, in most cases a selection of different spaces is generally seen in most museums. It is important to assess how these spaces will need to relate to one another, and how public and staff will circulation between these spaces.

These museum spaces can include (but are not limited to):

● Public display areas

● Storage for exhibits not currently on display

● Conservation area

● Data collection

● Loading/unloading

● Packing/unpacking

● Workshop

● Staff facilities

● Lobby/reception

● Sales/shop

● Café / Restaurant

● Public restroom facilities

● Event spaces

● Teaching rooms/ Library

How will collections be moved while the museum is still open to the public? Will staff use the same circulation as the public? Where will new collections be stored before being moved to exhibit areas? How are new collections delivered and processed? How are old collections packed up and shipped? How many of these areas need to be climate controlled? These are just a few questions that need to be considered.

Setting up museums and their architecture should be mindful of the amount of time that people are willing to spend learning. Is it to be assumed that the visitor will be attending one gallery or one space of the museum in its entirety in one go? What measures are being taken to entice visitors to return to museums and explore the whole museum and not just the one gallery? These are all important points to consider while planning the interior space design in the museum.

Museum Design Guidelines

● **Outdoor/Landscaping**

With the outdoor space of the museum there are several features to consider depending on the size of the outdoor space. Some things should absolutely be provided such as parking, outdoor toilets, and landscaping appropriate to the space.

Science City (National Council of Science Museums), Kolkata

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Other things that are recommended but not as necessary are spaces such as, a café, cultural space, or an outdoor event location. A good example of the usage of outdoor space in a museum can be seen at the Chhatrapati Shivaji Maharaj Vastu Sangrahalaya (CSMVS) where some of the vast outdoor space is used to establish a children's museum that utilizes the natural landscape to create a backdrop of a fun and lively experience for children.

● **Accessibility**

As mentioned earlier, it is imperative that the museum is accessible to all, and this should be taken into consideration throughout the design process to ensure access is not an afterthought.

The building must be able to accommodate people with any kind of disability. This can fall into three different areas:

■ *Approach and Entrance*

Users must be able to approach and enter the building safely and easily. If the building is an existing historic building with restrictions to access, it could be worth considering an alteration to the main point of entry to allow everyone to access the building in a more convenient location.

Museums with ticketing and access control right at the entrance make for an easier experience for visitors. They can have their ticket as well as instructions on how to navigate right at the entrance. It also allows the museum to have control of visitor access and entry.
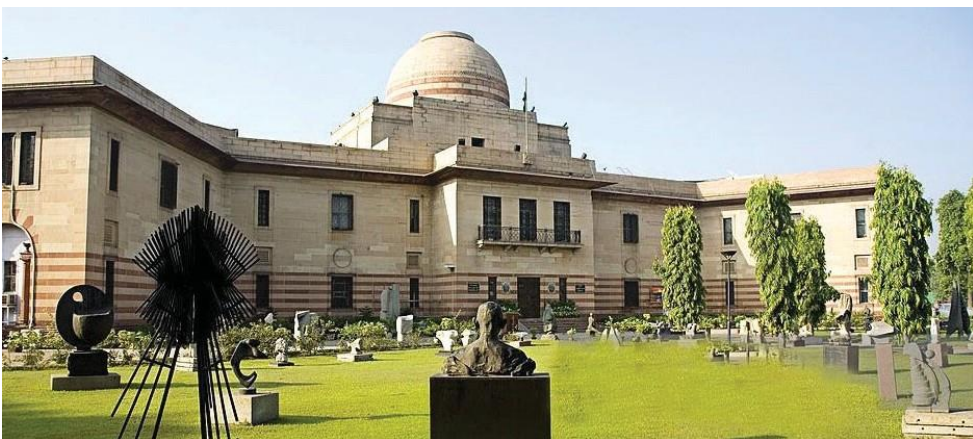
National Gallery of Modern Art, New Delhi

■ *Circulation*

All visitors should be able to circulate through the building using the same routes, with or without a disability. Ideally, if lifts are installed, they should be located near the main stair access to allow everyone to experience the same flow through the spaces. Facilities for disabled persons or those with physical challenges should be available on every floor to allow easy access.

■ *Staff*

All other areas that are not open to the public should be easily accessible for a wheelchair user, with suitable facilities on the office level.

All access requirements will be noted in local building regulations, it is important to adhere to these guidelines. However, one should always aim to go beyond the minimum requirements to make sure access and use of the museum is enjoyed by all equally as much as possible.

● **Display and communication**

How the exhibits are displayed and communicated will play an important role in the experience of the visitors. How will the staff communicate the collections to the visitors? What do the visitors want to see?

There are a variety of mediums that can facilitate communication of the collections to the visitors, and these include:

- graphic display
- video and sound
- theatre
- video
- static objects
- tactile objects
- interactive computers
- animatronics
- reconstruction
- working environments and more

One needs to be creative and think outside the box when planning how the visitors will experience the exhibits. Museum designers must think about colour schemes, layout of stories, and how everything might connect. Depending on the exhibits, it is important that there is plenty of space between and around the exhibits, so visitors can experience them clearly without being crowded by other visitors.

Interactive elements will allow visitors to explore and learn more about the topic, while sound can create a mood or atmosphere. Lighting is also an important element that allows viewers to see the exhibits and create an ambience.

It should be ensured that museum signage is clear, well-written and incorporates the important languages for the state so that visitors can easily understand what they are viewing.

Circulation throughout the museum

How visitors flow and circulate through the museum is a key component of the user experience. Is it easy to navigate? Does the route tell a story? Questions like this will help establish how visitors will experience the building and progress through the exhibits.
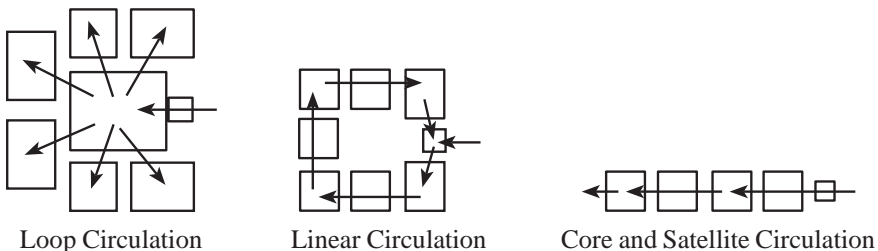
Signage and guidance are an important part of the circulation plan of a museum, helping guide the visitor on the suggested route through the exhibits helps them get the best experience of the museum. One should also keep in mind foreign visitors and how this information might be communicated to them.

The entrance of the museum should provide a clear indication of the layout of the building, proposed circulation, and facilities available to the visitor. This will ensure the visitor is able to access the collections, and the other museum services available.

Circulation through the museum may take a linear form, where there is a clear beginning, middle or end. Circulation could also be a loop, where the visitor is led through the collections and finishes back at the beginning. Other options include core and satellites, where there are more central areas with small display rooms branching off from them. In some cases, there will be a combination of all the above.

Staircases, escalators, and lifts will need to be designed in accordance with local building regulations.

Circulation through the spaces will be one of the most important parts of the museum planning and layout and is not to be underestimated.

Loop Circulation   Linear Circulation   Core and Satellite Circulation

Source: https://pdfcoffee.com/standards-4-pdf-free.html

Allahabad Museum, Prayagraj

Storage

Storage spaces will depend on the nature of the collections and the work carried out at the museum in addition to, the display of collections for visitors.

Storage spaces can require access by staff to assess the collections, or they may be temporary holding areas while collections are changed over. Generally, the storage areas will not be open to the public and solely used by the museum staff.

Storage requirements are specific to each museum, and it is important to understand the requirements and define the collection as well as, its potential to expand and ensure enough space is provided.

Storage for exhibits not currently on display

The museum needs to analyse its collection and decide on which part of its collection will be on display. The collections that will remain in storage; whether to be brought up for exhibitions or to be kept in storage for an indeterminate period, need to have adequate space built into the museum. There needs to be enough space so that the collections can be accommodated as well as, a consideration for the collections that will be added on. The museum should accommodate for the addition of collections for at least a decade.

The storage space will need to have the appropriate Heating, ventilation, and air conditioning or HVAC systems required for the long-term protection of the collection.

Public Facilities and Restrooms (including rest areas and Cafes)

Public facilities and restrooms should be easy to locate throughout the building.

Museum visitors often spend a long time in the building and will require moments to rest. Seating and rest zones should be available for visitors to use, along with usual sanitary requirements.

Cafes are often located at the entrance or exit to a museum to allow visitors to access refreshments at the start or end of their visit. Cafeterias have the potential to be a draw for the museum in their own capacity. People visit the Tate Modern in London for its café's, for example, especially the Terrace Bar which features an excellent view as well as, dishes and drinks inspired by artists and exhibitions. Another example is the Lota café at National Crafts Museum in Delhi that brings in large number of visitors both to the café with its specially curated space and menu but also promotes visits to the museum.

Museum Gift Shop/ Book Shop

For visitors, one of the key experiences of visiting a museum is being able to take a piece of the museum away with them. For this, the museum needs Gift shops or book shops with well-developed products that fit the overall theme and narrative – ideally in a cohesive design with the rest of the museum or the specific products made for an exhibition at the museum.

Lighting

The lighting design in a museum or building that houses sensitive objects is a complicated process. Considerations need to be taken first and foremost on the effects of natural and artificial lighting on the exhibits. Direct sunlight should not fall on a collection item and there are detailed guidance documents relating to UV radiation and light dosage which go beyond the scope of this article.

Lighting can also create a mood and experience for the visitor as they pass through the collections. It is important that visitors are not subjected to extreme changes in brightness since this can be uncomfortable. However, changes in lighting are important to provide interest. Coloured lighting can also be used as well as different types of lights. It can be used to create highlights and shadows around the collections.

A lighting specialist should usually be consulted for a museum design.

Chhatrapati Shivaji Maharaj Vastu Sangrahalaya, Mumbai

Bhau Daji Lad Museum, Mumbai

Climate, environment, and temperature

Museum collections are often sensitive to any fluctuations in temperature, humidity and air pollution. Therefore, it is important the climatic conditions are designed carefully and remain constant in any areas that house the exhibits, including any storage facilities.

There are guides available that demonstrate suitable relative humidity and temperatures for museums and galleries. It is likely that a specialist will be consulted to assist with the environment design of the museum, to ensure the conservation of the exhibits.

Incorporation of technology

With the incorporation of technology in museums there needs to be consideration of space for that technology. Architecture should be in place for features such as Wi-Fi, A/V systems, projectors, and so on.

Security

Security is an important consideration for any museum design. The safety of the museum staff, visitors and collections are of utmost importance, with many factors to consider.

Reducing entry points to the museum allows for access areas to be monitored closely. Usually, a single entrance for the public will suffice, with additional access for staff and deliveries. Entrance and exits are the more vulnerable parts of the building in terms of security and need special attention when designing.

Museum of Art and Photography, Bangalore

Museums are often zoned for security reasons, with daytime access enabled for all visitors, but nighttime security increased.

Visitors can be sent through a security checkpoint before entering the museum. Museum employees can wear uniforms to that they can be easily identified and trained on how to handle emergencies and protocols that should be followed.

All collections and exhibits must be suitably protected from theft, vandalism, and accidental damage. This may include using glass cabinets to house the exhibits or employing security staff to patrol the spaces and monitor particularly important or expensive pieces.

Space must be provided for equipment and safe escape from the building in case of an emergency.

Integrated Building Management System or iBMS

iBMS is a computer-based automated system installed in buildings that helps to control and monitor the buildings mechanical and electrical equipment such as ventilation, lighting, power systems, fire systems, and security systems. This system helps the museum become automated for essential services so that it is easier for the daily operations of the museum. It also makes the museum safer because it incorporates fire and security systems and automates them for early warning and suppression. This will ultimately be a life saver both for the visitors and staff as well as the collections. Furthermore, any kind of automated location-based ID of the collection can be incorporated into system and allows for better security of the collection.

**Museums to use as models/ good examples of architecture:**

Repurposed spaces:

● The Louvre, Paris (repurposing a heritage structure)

● The Musee d'Orsay, Paris (repurposing an old railway station)

● The Drishyakala, Delhi (reusing the barracks in the Red Fort)

● The Hermitage Museum, St. Petersburg (re-purposing a heritage building)

New Buildings:

● The Museum of Art and Photography (MAP), Bengaluru (new museum in a brand-new building)

● The Humayun's tomb Interpretation Centre, New Delhi (new museum – built in the baoli design)

● The Louvre, Abu Dhabi (new building using cues from Islamic architecture)

The table below identifies at a glance the facilities that a museum should keep in mind as it is developing its space. It is split into spaces inside and outside the museum as well as spaces that should be public or private.
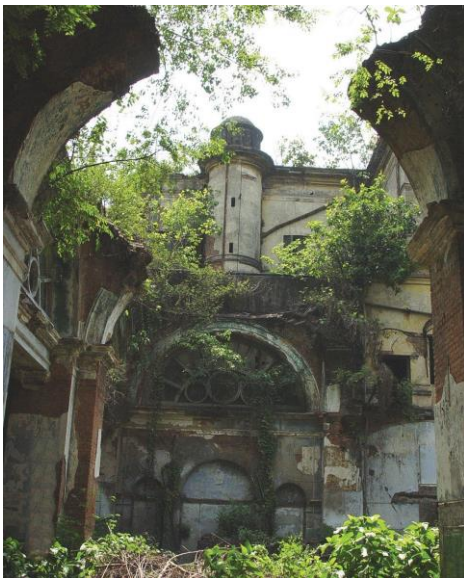
Currency Building, Kolkata, before conservation work by Archaeological Survey of India

Currency Building, Kolkata, after conservation work by Archaeological Survey of India

Facilities	Inside	Outside
Public	Exhibition Space	Landscape (trees, lawns, gardens, sculpture gardens)
	Circulation space	Toilets
	Rest spaces	Parking
	Toilets	Ticketing/ reception/security
	Ticketing space	Café
	Information desk/ visitor experience desk	Event locations/ cultural spaces (e.g., amphitheaters)
	Gift shops/ bookshops	Meeting Points
	Library	
	Workshops/ event areas	
Private	Storage	Security
	Staff public spaces	
	Loading and unloading zones	
	Conservation	

CONSERVATION AND CARE OF COLLECTIONS

Conservation and care of collections is the key in maintaining the aesthetics of a museum and its collection. Museums are repositories of our civilizational wealth, and they face innumerable risks due to environmental conditions, human errors, and natural disasters. Conservation of collection has two broader parts: 1) Preventive conservation and 2) remedial conservation. Preventive conservation categorises risk and identifies method for controlling risk to minimize the damage, whereas remedial conservation comes into play when damage has already been done. The goal of this chapter is to encourage inclusion of risk management, preventive conservation and focus on training of museum professionals, curators, collection managers and conservators. As per *ICOM-CC definition of the profession, Copenhagen, 1984, and ICOM code of ethics*, conservation can be defined as:

Conservation - all measures and actions aimed at safeguarding tangible cultural heritage while ensuring its accessibility to present and future generations. Conservation embraces *preventive conservation, remedial conservation, and restoration*. All measures and actions should respect the significance and the physical properties of the cultural heritage item.

- **Preventive conservation -** all measures and actions aimed at avoiding and minimizing future deterioration or loss. They are carried out within the context or on the surroundings of an item, but more often a group of items, whatever their age and condition. These measures and actions are indirect – they do not interfere with the materials and structures of the items. They do not modify their appearance.

    The methods involved in preventive conservation are measures for recording environmental factors (light, humidity, pollution, electricity, and pest control) with keeping records for storage, handling, packing, transportation, security, emergency plan, education of staff, public awareness, legal compliance.

- **Remedial conservation -** all actions directly applied to an item, or a group of items aimed at arresting current damaging processes or reinforcing their structure. These actions are only carried out when the items are in such a fragile condition or

deteriorating at such a rate, that they could be lost in a relatively short time. These actions sometimes modify the appearance of the items.

The remedial conservation involves treatment of objects such as cleaning, strengthening, revealing surface decoration, consolidation etc.

● **Restoration –** restoration equals permanent changes, all actions directly applied to a single and stable item aimed at facilitating its appreciation, understanding and use. These actions are only carried out when the item has lost part of its significance or function through past alteration or deterioration. They are based on respect for the original material. Most often such actions modify the appearance of the item.

The restoration process involves retouching a painting, reassembling a broken sculpture, reshaping a basket, filling losses on a glass vessel. Conservation measures and actions can sometimes serve more than one aim. For instance, varnish removal can be part of both restoration and remedial conservation. The application of protective coatings can be both restoration and preventive conservation.

1. **Preventive Conservation:**

Preventive conservation is the holistic approach for the care of a collection, it is the proactive care of museum collections with the goal of slowing down deterioration and preserving for the long-term stability of objects. The cataloguing of collection with its condition, display, and storage requirement helps in building up a summarized enlisting of the risks, which further helps the institution in gearing up for methods of controlling and minimizing the damage. The challenge is to manage the procedures of obtaining information and to make informed decisions based on that information. The information includes:

● **Policy development:** The museums need strict policies for implementations to achieve the standard care for the collection for long term preservation.

● **Data:** The data on humidity, temperature, light, pollution, and pest levels must be developed into information which can be readily understood and can be used to formulate decisions, that reduce the risks faced by objects in the museum environment.

● **Monitoring and maintaining:** Accept the reality of buildings, their operation and maintenance. There is a need to regularly assess the process of monitoring and maintaining the buildings' environment to ensure to collect accurate data and what is supposed to do if deviation happens above the given range. It is essential that staff understand accurately and completely every step in the process of controlling the museum environment effectively.

1.1 Categorizing collection and factors of deterioration:

The collection can be categorized as per character of material, which can be broadly labelled as organic, inorganic, composite and man-made.

INORGANIC (Natural material)	ORGANIC (Animal/plant based)	COMPOSITE (Combined material)	MAN- MADE
Ceramic, clay	Skin, leather, parchment	Wood with inlays, paint, gilding	Synthetic fibres, textiles, rubber etc.
Stone, gemstone	Feathers	Textiles with metals, dyes, leather	Plastics
Metal	Fibres	Paper/ parchment with mineral or metallic colour	Medical and chemical products
Glass	Bone, ivory, shell	Paper/ parchment with organic colour	
Minerals	Wool, silk, cotton, fur, linen, bamboo		
	Glues and gums		
	Wood		

Factors of deterioration can be broadly categorized as:

Deterioration Factors

Natural Disaster	Environment	Human Error
Flood	Light	Accidents (improper handling)
Fire	Pest/ insect	Theft
Earthquake	Relative Humidity	Insurance
Tsunami	Temperature	Improper conservation practice
Cloud burst	Gases and dust	Poor housekeeping
Cyclone		

Not all factors are harmful for each form of material. The table below is given to understand the extent of damage each risk factor can cause to museum collection.

Natural Disaster

Factors	Organic	Inorganic	Composite	Man Made
Flood	✓	✓	✓	✓
Fire	✓	✓	#	#
Earthquake	#	#	#	#
Tsunami	✓	✓	✓	✓
Cyclone	✓	✓	✓	✓

Environmental

Light	✓	x	#	x
Pest/insect	✓	x	#	x
Relative humidity	✓	x	#	x
Temperature	✓	x	#	x
Gases and dust	#	#	#	#

Human Error

Accidents	✓	✓	✓	✓
Theft	✓	✓	✓	✓
Insurance	✓	✓	✓	✓
Improper conservation	✓	✓	✓	✓

✓ stands for complete loss, # Stands for partial loss, x Stands for no affect

1.2 Preparation of the Assessment Report:

The first step for preventive conservation is the object-wise assessment of the collection. The condition report is a detailed study of the object from the curator's point of view, which will help them take a decision on any special need for storage or if remedial conservation is required. The report should contain three principal sections:

1) **Data and analysis:** This section should present the data that were collected during the assessment, as well as any analysis that were conducted on

those data. This section should be as detailed and specific as possible, so that readers can understand the reasoning behind the recommendations that are made in the next section

2) **Recommended strategies:** This section should present the recommendations that came out of the assessment, organized into different strategies. Each strategy should be explained in detail, and the rationale for each recommendation should be clear.

3) **Proposed phases for implementation:** This section should present a proposed plan for implementing the recommendations that were made in the previous section. This plan should be realistic and achievable, and it should be clear how each recommendation will be carried out.

The Annexure at the end of this chapter contains a sample Condition Report.

1.3 Monitoring Strategies:

Monitoring and controlling the environment of showcases and storage is extremely important. Environmental monitoring instruments have gained an increased importance as they easily allow checking for the accustomed standards. For the long term, they provide conclusive seasonal variations to adjust the control system accordingly. The listed tools are available to measure the environmental conditions.

- **Luxmeter:** Light meter or luxmeter is to check the amount of light in a particular space or area. The light meter has a sensor that measures light which falls on it and give user the measurable illuminance reading.

- **Data logger:** Data loggers are devices installed within the area which needs to be monitored for relative humidity and temperature fluctuation in equal interval for a precise time duration. In the information received is in tabular form which can be converted into line or bar graphs for comparison.

- **CO_2 data logger:** CO_2 data loggers detect for the presence of carbon dioxide based on the absorption of infrared light at a specific wavelength. CO_2 monitors help to identify any areas of poor ventilation, allowing you to make the necessary changes to keep fresh air flowing, whether that be via mechanical ventilation or ensuring doors and windows are open. They measure the concentrations of CO_2 in parts per million (ppm).

- **UV data logger:** Records the exposure of light in specific arears. The pre-set can be managed on the device so the UV logger detects when limit values ae reached. This gives you the constant control of light influences.

- **Shock data/ Vibration logger:** These are designed to specifically to record whether the objects have been exposed to strong vibrations during transport or in any other way.

- **Multimeters:** This is a tool to measure voltage and current. It can be connected to both direct current and alternative current also it can be used to measure the resistance. By this means one can have control over load of electricity which can cause disasters.

A customized system can also be integrated into a museum which has a monitoring mechanism that measures, monitors and documents temperature, humidity, light intensity, UV radiation, CO_2 concentration, atmospheric pressure continuously, precisely, and automatically. This creates a conducive and ambient climate monitoring and preservation of valuable objects or systems. The data loggers transfer the measurement values by wireless LAN to cloud storage. From there, they can be pulled up through a PC/tablet/ smartphone from any place with internet access. If the individually defined upper or lower limit values are exceeded, an alarm is immediately provided by SMS and/or e-mail. Rather using different tools for monitoring, a unified integrated system would be more optimal.

Integrated pest management (IPM): IPM is an effective and eco-friendly approach towards pest management. Preventive pesticide application is limited as exposure to pesticide outweigh the benefits of control. When same can be achieved using non-chemical methods. It includes inspection, monitoring and reports. IPM uses this implementation approach:

1. Identify pests and monitor progress
2. Set action thresholds
3. Prevent
4. Controls

1.4 Environmental standards:

As per the "The manual of Museum planning, HMSO publications" recommended standards for environmental conditions are:

Environmnetal Condition	Recommended Standards
Relative humidity	50 ± 3% round the year
Air cleanliness	90-95% efficiency particulate filtration
Light levels	50 lux for highly sensitive artifacts.
	150-200 lux for moderately sensitive artifacts.
	300 lux for least sensitive artifacts.
	Maximum 75 watts/lumen of UV light.
	Infra-red heating, control by limiting visible light readings to the lux levels proposed above.
Temperature	210c ± 0.5 0c winter, 24oc ± 0.5 0c summer or 210c ± 0.5 0c year-round.

1.5 Risk Management and Safety Measures

In the course of its establishment and development, a museum may be exposed potential risks and threats that may have a negative impact on museum collections, the building and sites, and on the objectives concerning their use and preservation. The impact of risks in this case is expressed in terms of the expected loss of value to the asset. Types of risks vary from sudden and catastrophic events (such as major earthquakes, floods, fires) to gradual and cumulative processes (such as chemical, physical, or biological degradation). Risk management is the process of identifying, assessing, and controlling risks.

The risk management process consists of four steps:

Risk identification	Risk analysis	Risk evaluation	Risk Treatment

The Annexure at the end of this chapter contains a sample Risk Assessment Form.

Safety measures in museums and conservation laboratory:

Mentioned below are some safety measures that should be followed at all museums, with or without a conservation laboratory. These base-level measures will ensure the safety of the artifacts and the museum staff.

● **Dehumidifier:** Museums who are unbale to afford air conditioners for maintaining the required temperature and humidity level may invest in dehumidifiers as it will help reducing and maintaining humidity level in the air.

- **Silica gel:** Practically, this method is more tedious and labour intensive but works as a cost-effective alternative. Silica gel pouches may be used to absorb excess moisture from the air, to maintain a certain RH.

- **Fume extractor:** A fume extractor with activated charcoal aids in getting rid of the harmful gases and dust present the area, absorb the bad elements and give out clean air. This is highly recommended when certain chemicals are being used in the area.

- **Air purifier:** This is used to absorb the dust and pollution in the area, and to purify the air by removing dust and gases.

- **Experiment chamber:** These are required when anti-microbial treatment needs to be given to an artifact or some experiment needs to be done to achieve any conclusions on a specific parameter.

- **Chemical storage cabinet:** All the chemicals or reagents are required to be stored in special cabinets for storing chemicals, which are specially designed to separate incompatible chemicals from one another to ensure their safe storage.

- **Fire extinguishers:** Fire extinguishers are required to ensure safety during any fire situations. The staff should conduct regular fire drills in order stay updated with protocols. Proper training so that everyone in staff can operate the fire extinguisher may also be considered.

- **Smoke detector alarm:** These alarms detect fire by sensing smoke present in the air using in-built technology. Once they detect smoke, an automated message is sent to the nearest fire station, and it also operates the fire hydrant system.

- **Fire alarm:** It works on similar lines as the smoke detector.

- **Fire hydrant system:** On receiving signal from either fire alarm or another form of detector, it extracts the water from the pipelines and water distribution system and assure fast water supply in case of fire.

- **Emergency Exit:** It ensures the safe exit for staff and visitors, in case of an emergency.

1.6 Basic conservation laboratory setup

All museums should have an in-house conservation laboratory with trained professionals in an appropriate location, with the correct conservation

equipment, chemicals, and climate control equipment. The function of this conservation laboratory is to assist museum staff and the curator in making timely interventions in decision making re conservation. This facility has opportunities to redefine space for:

- In-house conservation treatment of collection
- Include conservation research
- Include training of trainees and fellows
- Reduce or end dependence on outsourced treatments
- Engagement of curator in conservation and monitoring practices
- To provide exhibition-determined or loan-driven treatments

The laboratory should have:
- Good natural light
- Clear access to the collection (display and storage)
- Good security
- Safety of the conservators
- Remoteness from the sources of vibration, noise dust and odours

The functional laboratory should have basic tools and equipment's as listed:
1. Worktables/ specialized tables
2. Sink
3. Storage shelves and cabinets
4. Laptop or computer
5. Digital camera
6. Low pressure table
7. Ultra-sonic humidifier
8. Fuming chamber
9. Basic stationary

Basic tools such as:
1. Magnifying glass
2. Tweezers
3. Brushes (all numbers- round and flat)

4. Gloves

5. Goggles

6. Aprons

7. Cotton swab and sticks

8. Reagent bottles

9. Silicon sheets (These have silicon coating on one side which helps working with adhesives as nothing stuck on it)

10. Blotters

11. Melenix/ silicon coated melenix (It is a plastic-like sheet which is heat resistant and helps in processes that involve heating. Silicon coating serves the purpose for both silicon sheets and melenix)

Common chemicals such as:

1. **Distilled water –** used for dust and dirt cleaning for non-aqueous sensitive object.

2. **Ethanol –** used dust and dirt cleaning for object which sensitive to water.

3. **Isopropyl alcohol –** used dust and dirt cleaning for object which sensitive to water.

4. **Acetic acid –** used for cleaning rust stains.

5. **Petroleum ether –** used for dry cleaning of textiles.

6. **White spirit –** used for dry cleaning of textiles.

7. **Trichloroethylene –** used for removing adhesive stains.

1.7 Ethics in conservation:

The ethics of conservation demand well planned photographic, written, and graphical documentation of the object. In remedial conservation minimum intervention and minimal cleaning should be practiced. If absolutely required, then only comparable material should be added to the original, and the compatibility of the two must be examined before introducing. The new material should be reversible in nature. Re-creating is always optional in remedial conservation also in terms of conservation of museum objects.

1.8 Storage:

Museum collections are intended to be held in permanence, as cultural heritage, and assets for the future. A good museum storage is a major part

of preventive conservation. An ideal storage must incorporate the following principles:

- Situated away from the flood plains or area,
- Have good drainage and soil stability,
- Allows ease of access,
- Have reliable utilities supply including emergency supply,
- Have climate control and monitoring devices,
- Close to fire station, and other emergency services,
- Free from industrial contamination and pest infestation.

Table shows storage locations within the building:

(Adapted from "*Manual of museum planning*" third edition, chapter 7-planning or collection care, page 253)

Floor Level	Advantages	Disadvantages	Suitability
Basement	Excellent floor loading	Danger of flooding, ground water	Man-made material/ inorganic material
	Buffered environment	Infiltration	
	No competition with public space	Requires stairs or lifts	
	Better security		
	No windows		
Ground Floor	Excellent floor loading	Competes with public space	None: security issues
	Less danger of flooding	Possible flooding	
	Ease of access	Less secure	
First Floor	No danger of flooding	Floor loading will be lower	Man-made material/inorganic material/composite material /organic material
	Buffered environment	No direct access	
	competes with public space		
Top Floor	No danger of flooding	Floor loading will be lower	Man-made material/ inorganic material/ composite material /organic material
		No direct access	
		Risk of leaks and access from floor	

1.8 Technical Analysis

The impact of modern scientific techniques into the conservation field has been impressive. It allows conservators to work with a much higher degree of certainty, precision, and to see beyond the naked eye, to see 'through' a work. Its principal objective is to analyse an artist's painting techniques, assess damage and any previous restorations to establish a restoration strategy. It can also reveal whether a work is a forgery or a copy. The data obtained from this scientific analysis can help the conservation treatment and will be recorded in the condition report. Conservators are now expected to have a good knowledge of scientific techniques, and many of them are actively engaged in research and development. Where a work is complex, or there is a disputed authorship, several scientific techniques may be used in combination. This can sometimes be a lengthy process, but it is essential to obtain a full understanding that a conservation treatment will address. Some of these techniques include:

1. **Microscopy:** Microscopy is a powerful tool that can be used to investigate the surface of an object, as well as to look at the structure of an object. Microscopes allow us to see the surface of an object in much greater detail and can be used to investigate a wide range of materials, including paint and canvas, paper and parchment, stone, wood, glass, and metals. Microscopes can also be used to look at the structure of an object, such as the wood grain in a painting or the fabric weave in a textile. This can be very useful when investigating how an object was made, or when trying to identify a material.

2. **Spectroscopy:** Spectroscopy is a technique that uses light to investigate the composition of a material. There are many different types of spectroscopies, but the most common type used in conservation is infrared spectroscopy. Infrared spectroscopy can be used to identify the chemical components of a material and can be very useful for investigating.

3. **Digital Infra-red Photography:** Digital infra-red photography is a technology that is increasingly being used in the field of museum conservation. This type of photography uses an infrared camera to capture images of objects that are hidden from view. This can be useful for conservators who want to document hidden damage or identify areas that need further investigation.

4. **X-Ray and Radiography:** This allows a conservator to establish how a painting was composed based on different layers of absorption and the

technique employed by the artist. It can also reveal a painting's real origins and solve issues of attribution.

5. **Pigment and Medium Analysis:** Pigment analysis is a very important part of the conservation of artifacts. It can help to determine the original pigments used, as well as to identify any potential substitutes that might be used in conservation treatments. Medium analysis can also help to determine its stability and date a work.

6. **Stratigraphic analysis:** Stratigraphic analysis is often used to study paintings. By looking at the layers of paint, conservators can determine the order in which the paint was applied, and this can help them to understand the painting's history. It can also help them to determine the best way to preserve the painting, by understanding which layers are most at risk of damage.

7. **UV-Radiation Photography:** UV-photography is an effective means to detect tiny changes in materials and to evaluate the condition of objects. It is used to document the condition of objects prior to treatment and to compare pictures of the same object at different times. It can be used to detect changes in pigments and dyes, to locate retouching if any, to reveal fluorescing materials, to locate cracks and fissures, and to detect changes in materials that are otherwise not visible to the naked eye.
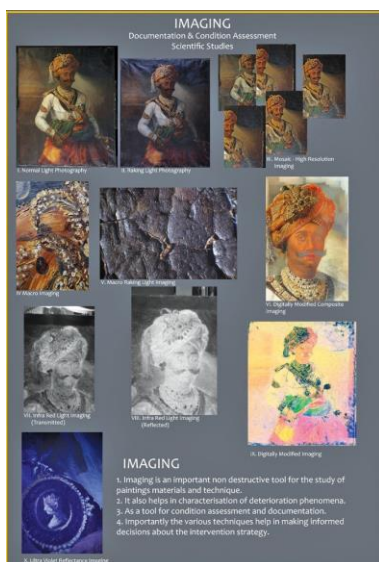
Image courtesy: Indira Gandhi National Centre for the Arts

ANNEXURE

I. **Condition Report**

Object/title:

Nature of Object:

(Organic/Inorganic, Composite, Manmade)

Accession number:

Inventory location:

Dimensions (LxWxH):

Date of Report:

Person Reporting:

Purpose of Report:

(Accession, Loan, Inventory or Other)

Conservation Priority
1 = Object in Jeopardy
2 = Not exhibitable as is
3 = Needs minor repair or cleaning
4 = Needs further evaluation
5 = Needs no work

OVERALL CONDITION (check one):
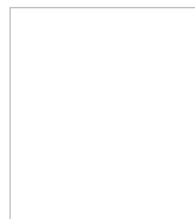
 Excellent _____   Good _____   Fair _____   Poor _

Description:

_____

_____

_____

_____

_____

_____

_____

_____

_____

Image or Rough Sketch:

Object:_____

Reporter:_____

Date:_____

Materials (General): _____

*Circle/Underline the appropriate choice:

Damage (If known) due to: Fire/smoke, water, display, handling, shipping, storage.	Biological: Insect damage or infestation, mold, pesticide.
Physical: Surface damage, broken, tears and hole, discoloured.	Deposits: Corrosion/tarnish, marks, fingerprints, dusty, greasy/waxy.
Parts are: Damaged, missing, loose.	Action recommendation: Conservation, further investigation.

Comments:

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II. Risk Assessment

Museum Salvage Sheet

Object No.	Name	Condition	Brief Description	Remarks

Reference Sheet

Use this museum salvage sheet as a reference guide in an emergency. On the salvage form, detail description and condition of each object should be mentioned.

PAINTINGS	BOOKS AND PAPER
If wet lay flat, paint upwards, do not touch wet gilding or any paint. Check for loose joints or glass stack dry frames back- to-back, interleave with sheets of cards, bubble wrap or jiffy foam, do not stack unframed paintings. Keep flat.	**WET:** keep books shut and spine down, pack in Ziplock bags in crate/box. **DAMP:** If binding is strong enough, stand books on table with pages fanned to air dry, interleave damp papers with blotters. Protect papers with card folders. **DRY:** Pack books flat, protect papers with card folders.
TEXTILES	PHOTOGRAPHS
Lay flat and air dry, if possible. Roll carpets pile out. Use proper rollers to roll objects (plastic drainage pipe with protective coating), Carry large items supported on polythene, bubble wrap or Tyvek sheet. Avoid folding, dyes, metal work at special risk.	Separate dry, damp, wet. Keep area clean. Handle by edges only. Do not touch image surface. If safe, rinse in clean water while wet to remove loose dirt. Hang wet/damp prints on the line or lay face-up on silicone release sheet. Will curl when drying. Be careful of drafts when dry. Colour photographs are sensitive.
ORGANIC MATERIALS	MISCELLANEOUS
May need support while drying, leather may shrink or warp- get specialist help. Other materials may cause staining.	Keeping assemblages together may be vital (e.g., acid free box for pottery or bone) Be aware of hazards form the objects- mercury, old pesticides, pigments, radioactivity.

COLLECTIONS MANAGEMENT SYSTEMS

The museum builds its collections based on its unique statement of purpose, themes, priorities, and mission with reference to its legal and ethical frameworks (including, bye-laws) approved by the governing body and directives received from the purchase committee. This collection grows over time through new acquisitions in the forms of purchase, gifts, mergers, and other means. Sometimes, objects in the collection are 'de-accessioned' in certain circumstances, e.g., when they are not historic antiquities and public interest in them has diminished, when their authenticity has been disproved, etc. In short, collections are of an evolving nature, and this must be continuously documented at all times. This brings us to the concept of collections management.

Collections Management refers to the ethical, legal, practical, and technical methods used by a museum for assembling, organizing, researching, interpreting, and preserving its collections.

While museum collections contain large numbers of individual items, many different kinds of objects, specimens, artworks, documents, artefacts, and **all are representative of the "***natural, cultural, and scientific heritage***"** (ICOM Code of Ethics for Museums, 2004).

Elements of Collection Management as described by ICOM UNESCO are: i). Registration of collections; ii). Preservation of collection; iii). Providing controlled access to collections through exhibit or research to educate or interpret while addressing registration.

Collection Management: Standard Norms and Practices

A museum's collections management policy should address registration, preservation, and accessibility in its overall framework.

- **International Committee for Documentation of the International Council of Museums** (ICOM-CIDOC), Paris (International Guidelines for Museum Object Information: The CIDOC Information Categories; 1995).

- **AFICROM Standard** based on guidelines developed by ICOM's International Committee for Documentation (CIDOC). (International Council of Museums. International Committee for Documentation, 1995).

- **SPECTRUM** standard, developed by the United Kingdom-based Museum Documentation Association (MDA) in 1994 is a collection management standard in 21 procedures.

- **Categories for the Description of Works of Art (CDWA),** Art Information Task Force (AITF); 1996, J. Paul Getty Trust, Los Angeles.

- **Object ID** guidelines for describing, recording and cataloguing art, antiquities and cultural objects (1999/2007). An international standard in case of loss or theft.

- **Dublin Core (DC),** developed as a means of retrieving information resources on internet (Dublin Core, 2004).

- **PAS197: 2009: Code of Practice for Cultural Collections Management,** An advisory standard that describes and encourages consensus of practice across the museum, library and archive profession. The standard was produced by Collections Trust.

- **Canadian Heritage Information Network (CHIN),** Quebec (Data Dictionaries for the Humanities and Natural Sciences, 1981, last updated 2010).

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1. Collection Management Systems: CMS

Every museum must have a collection management policy that addresses issues of registration, preservation, and accessibility. Collections Management Software (CMS) is a computerised platform that helps in museum management. It helps with catalogues, acquisitions, deaccessions, thesaurus, loans, exhibitions, shipments/ transport, condition/conservation, search reports, security, multimedia, copyright/ reproductions, data imports/exports, and barcodes.

Some widely used CMS's include, *TMS collections and eMuseum, Vernon CMS, Sofie, Museum Plus, e-Hive, Modes Complete, Collections MOSAiC Plus, Collector Systems, Past Perfect*, etc. The Annexure at the end of the chapter contains more details.

In addition to this, there exist Free Open-Source Tools softwares that offer flexibility and scalability options. Some popular ones include, *Omeka* (a web publishing system for online digital archives), *Collective Access* (a cataloguing tool and web-based application for museums, archives, and digital collections), *Open Exhibits* (a multitouch and multi-user platform with interactive customised exhibits), among others. While these software offer diverse licensing schemes, platforms for community engagement and remain a cost-effective option. One must be cautious of hidden maintenance costs, software vulnerabilities, security flaws and copyright issues that may arise.

Therefore, it is advised that institutions choose open-source software, with a clause for periodic upgrades. Ideally, they should enter into a maintenance contract with the collection management system provider (particularly, while handling sensitive, personal and operational data) with a provision for periodic software upgrades, enhanced security features, strict institutional accessibility and regular maintenance upgrades.

2. Documentation

Accurate documentation is essential for collections management. Accessioning, maintaining an inventory, cataloguing, and laying down the details of its ownership are its primary elements. Documentation reference tools, include *an accession number* (unique number that identifies each object in the collection); *an accession register* (containing the chronological accession number details; information about the object arranged in columns; the number and names of these columns vary according to the museum); *the card* (basic file in the documentation system indicating the location code of the object); *an index file* (to carry out research on the collection); *checking the inventory by confirming actual presence of every object in the museum*. The importance of the regular physical verification of all the objects in the collection cannot be overemphasized.

Information about each object (an acquisition method, date, source, and any other conditions); the provenance of an acquired object from its discovery or creation to the present (its production, collection, ownership, and context of use); and source materials held by the museum (including, documentary photographs) is recorded through documentation.

Provenance

As museum professionals, being acquainted with provenance is crucial. Provenance refers to information about the origin, history and ownership of an object or artefact. It is critical for setting the record and establishing ownership. It is the museums responsibility to establish the legal ownership of each acquisition and authenticate the ownership.

The Antiquities and Art Treasures Act, 1972, India

In India, the central government reserves the right (the Antiquities and Art Treasures Act, 1972: clause 19) to compulsorily 'acquire' any object, such that this 'nationalization' of legitimately held objects is tantamount to state theft.

An antiquity is defined in Section 2 as something that is over a hundred years old (which was subsequently amended to include manuscripts and documents that are 75 years old). Section 3 states that it is illegal to export any antiquity unless authorised by the central government. Section 5 states that an antiquity may be sold within India only under a license. Sections 5 to 12, thereafter are concerned with how licences are to be procured and what conditions must be met in order to have a license to sell anything that may be over a hundred (or 75) years old in the country.

Section 14(2) states, 'Every person who owns, controls or is in possession of any antiquity ... shall register such antiquity before the [sic] registering officer.' The following three sections (15-17) further concern themselves with the matter of registration. Importantly, however, the government retains the right to override private ownership of art works. Section 19(1) states, 'If the central government is of the opinion that it is desirable to preserve any antiquity or art treasure in a public place, that government may make an order for the compulsory acquisition of such antiquity or art treasure.' Further, Section 20 (1) states, 'Where any antiquity or art treasure is compulsorily acquired under Section 19, there shall be paid compensation...'

For more information, kindly refer to the annexure.

https://legislative.gov.in/sites/default/files/A1972-52.pdf

In the rare case of loss or theft of an object, the museum can provide law enforcement agencies with information and images for its recovery (unique number, production date or period, maker, materials, measurements, physical condition, and distinguishing features). In addition to this, documentation must include a section on intellectual

Software's used for 3-D modelling:
● Autodesk Maya
● Autodesk mudbox
● Houdini
● Autodesk 3Ds Max
● Agisoft

property rights and documented data should be kept in a secure environment with retrieval systems accessed only by legitimate museum personnel.

Scientific documentation must be carried out with regular photography. In case of paintings or painted surfaces, multi-spectral imaging is suggested. While Xray fluorescence (XRF) is recommended for metals and paintings. Adherence to digitization guidelines ensures quality, consistency, and longevity of the valuable resources.

2.1 Image digitization guidelines and process

Digital images can be created from many sources (with the help of a scanner or a good-quality digital camera). However, they should be of a high resolution to produce 3-D or 2-D images and saved in a common file format (such as, *TIFF [Tagged Image File Format], JPEG [Joint Photographic Experts Group], GIF [Graphics Interchange Format] and JPEG-2000*). Some file formats may remove redundant information to reduce file size, known as compression. Therefore, saving digital images in an uncompressed file format (such as TIFF) is suggested. The golden rule of 'scanning once' should be followed. A master file should be created and thereafter, derivative or access files should be generated utilizing varying file formats.

Guidelines for Creating Digital Images

- Bitonal (black and white, line art) – One bit per pixel representing black and white. Bitonal scanning is best suited to high-contrast documents such as printed text.

- Grayscale (black and white photograph) – Multiple bits per pixel representing shades of Gray. Grayscale is suited to continuous tone documents, such as black and white photographs.

- Colour - Multiple bits per pixel representing colour. Colour scanning is suited to documents with continuous tone colour information.

These images/photographs should be from every possible perspective. Particular attention should be paid to any inscription or signature made by the artist or the collector. Such information constitutes an integral part of the documentation of the artifact.

For painted surfaces or easel paintings it is recommended to have a multispectral imaging (MSI) as well as it can help with collecting minor details from the object. There is no one best resolution in scanning or photography. Spatial resolution should be adjusted based on the size, quality, condition, and uses of the digital object.

Metadata:

> Metadata refers to information about the content, structure and context of an object. It can be recorded as card catalogues, vertical files and file labels. Metadata may be recorded in digital formats too.
>
> Museum professionals can apply the term to information needed to create, arrange, describe, track, access objects and collections. Metadata plays a crucial role in documenting and indicating the authenticity, context, management, processing, preservation, and conveying the degree of completeness of the object.

Types of Metadata

Administrative Metadata	Describes the ownership and management rights
Descriptive Metadata	Describes the intellectual content of a resource
Structural Metadata	Describes relationships between multiple digital files, such as, page order in a digitized book or manuscript
Technical Metadata	Describes the features of the digital file, such as resolution, pixel dimensions, compression

Imaging:

Given below are digitization standards followed by cultural institutions

	Resolution (Minimum)	Bit Depth	Colour Mode	Archival File Format	Format Online File
Items in black and white with shades of grey	300 ppi (pixel per inch)	8-bit	Grayscale	TIFF	JPEG
Items containing colour	300 ppi	24-bit	RGB colour	TIF	JPEG

Chart outlining the digitization process

Flow chart outlining the digitization process steps

↓

Inventory

↓

Establish appropriateness for digitization

↓

Determine File Name

↓

Create Folders

↓

Digitize using proper equipment and software

↓

Save and save again on appropriate file storage platforms

↓

Make any necessary changes to images

↓

Save and save again on appropriate file storage platforms

↓

Import into data management software with accompanying data

3. **Digitization in Museums**

    Digitization Policy

    Digital change is a major challenge for museums. It necessitates museums to adopt a digital approach with well-defined priorities and optimize its resource utilization. It is suggested that the museum's governing body develops digitization policies that embody the mission and mandate of the museum with long-term measures for digital collections (maintenance, care, and costs).

    Factors to examine and incorporate within a digital policy would be: Risk Assessment; Scope and Objectives; Roles, Responsibilities and Personnel; Monitoring and Reviewing of the Policy; Benefits; Needs Assessment; Legal, Financial and Technical Requirements; Costs and Financial Commitments.

    National legal frameworks, especially, intellectual property rights (with collections best practices for collections online) accompanied with copyright benefits for educational institutions, as well as a centralised technological framework (across all states, districts, cities in the country) will indeed strengthen the museum's digital impact and widen its institutional outreach.

    Museum Digitization Protocols

    Digital heritage refers to 'heritage which is made up of computer-based materials, whether born digital or digitized from other format, which means emanates from different communities, industries, sectors and regions and requires active preservation approaches to ensure its authenticity, accessibility and usability through time' (The UNESCO/PERSIST Guidelines for the selection of digital heritage for long- term preservation, 2016, pp.16).

    ICOM Digitization Protocol

    The statement of principles of the Documentation Committee of the International Council of Museums (ICOM-CIDOC), is a guide for museums developing their documentation and collections management policies. It complements the ICOM Code of Ethics for Museums, 2006.

4. **National Case Study: India**

    The Government of India has undertaken initiatives towards standardizing documentation procedure for museums. The Ministry of Culture (MoC)

established the *'National Mission for Manuscripts'* (**NMM, 2003**) *and 'National Mission on Monuments and Antiquities'* (**NMMA, 2007**) for a documentation system compatible with digital technology in the form of national database of all Indian manuscripts and tangible heritage including antiquities.

For the development of specific areas, as identified in the *14-point Museum Reform Agenda* **in 2009**, the Ministry initiated two schemes initiated as an outcome - the *'Financial Assistance for Digitization of Museum Collections'* which aims at developing a national database of museum collections and provide enhanced accessibility to users, and *'Financial Assistance for Capacity Building and training of Museum Professionals'* which aims at fulfilling an urgent need for trained professionals on various aspects of museum management including documentation.

The mission to create a national database of all Indian manuscripts in the country and abroad, kept whether in a museum, library, archive, educational or religious institution, or in a private collection. The National Database of Manuscripts known as *Kriti Sampada* is online through the NMM's website.

Source: https://www.namami.gov.in/database-menu-script

Established in 2003, NMM endeavours to safeguard and disseminate our rich cultural heritage contained in more than five million manuscripts in several languages spread across the country and abroad. The National Database of Manuscripts known as *Kriti Sampada*, is available on the internet through the NMM's website. Under the NMM studies have been done on several digitization projects at national and international level for best possible practices to be adopted.

NMMA was launched in 2007 for a comprehensive documentation system compatible with digital technology in the form of national database on tangible heritage of our country. For the creation of a national digital database, NMMA has defined certain benchmarks to maintain overall uniformity such as digital photography of the objects should be taken in uncompressed TIFF (Tagged Image File Format) format in 300 dpi resolution; the antiquities should be photographed with appropriate background for better output, the documentation of built heritage, sites and antiquities should be computed in MS Excel format, provision should be made to give the photographs both in documentation sheet, as well as, separately as master image.

In the 12th Plan period (2012-2017) some new schemes are introduced by MoC to improve museum functioning by reducing fundamental obstacles as well as the development of some specific areas of management as identified in the '*14 Point Museum Reform Agenda', 2009*. Such a new scheme is 'museum digitization' which

is introduced in order to develop a national database of all art objects and antiquities available with the museums at various levels including national, state, regional and local museums and to provide enhanced accessibility to diverse users including scholars, researchers and informed visitors. This scheme has two components, one related to establishment of infrastructure by linking central server to museum level server and computers through dedicated channels and another one is related to digitization of all collections, summary catalogues and cross-indexed with fuller details on a template basis.

Limited accessibility to this database to be provided through internet based on lower resolution images and full accessibility through nodes to be provided at each national level museum of our country, additional nodes can also be considered for provision in universities, research institutions and other organizations (such as the Indian National Trust for Art and Cultural Heritage (INTACH), or the National Research Laboratory For Conservation Of Cultural Property (NRLC) etc.), where the need for such information exists. Under this central scheme funds will be provided by the Ministry of Culture in the form of grants to various museums under the state governments, registered societies, voluntary institutions, trusts and NGO's, which are registered under the Indian Societies Act of 1860 or a similar legislation.

The scheme for scientific documentation work of museum collection following the Ministry of Culture, Digitization scheme:

1. Digitization of collections management system of the museum by procuring and using an appropriate standard software being used by renowned Museums in the country.

2. Photography of art works of museum for digitization purposes.

3. Creation or upgradation of website of a museum.

4. Creation of a digital catalogue of works available in the museum for public dissemination through the museum website.

5. Procurement of hardware like servers, clients, LAN, scanners, cameras etc., for digitization works for the museum.

6. Development of an online museum library.

7. Development of interactive information kiosks for the museum.

Another central scheme under the MOC in the 12th Plan period, namely *'Capacity building and training'* which has been developed to fulfil an urgent need for trained professionals at museums at various levels such as national level, state level, regional and local level museums all across the country. The scope of this scheme will be to support institutions who wish to depute their professionals for intensive capacity building, training programmes in order to upgrade their expertise in specific areas of museum management such as collection management including documentation, preventive care and storage and many other functional areas etc. in collaboration with national and internationally well-known museums and institutions.

The MoC embarked upon the digitization of the collections of the National Museums as a part of the Swami Vivekananda Memorial Museum Excellence Program jointly with the Art Institute of Chicago, USA. The *museum digitization initiative* was focused on making effective utilization of technology in museum management and bringing the collections of these museums closer to the public by making them available for online viewing over the internet.

A comprehensive software, *JATAN: Virtual Museum Builder,* developed by the Centre for Development of Advanced Computing (C-DAC), Pune has been *selected as the standard software for all museums under the purview of Ministry of Culture*. In the first phase of the digitization project, JATAN has been implemented in 10 national museums under the Ministry, and approximately 3 lakh digitized objects of museums are available online through the National Digital Repository & Portal for Museums of India (*www.museumsofindia.gov.in*).

DIGITAL PRESERVATION OF MUSEUMS

One of the important mandates of the Ministry of Culture is the development and upgradation of the Museums within the country. Museums are a repository of a nation's culture as they contain explicit examples of the proof of the development of a country's culture and heritage over a period of time. The strengthening of the country's museums is thereby an important activity covered under the ambit of the Ministry of Culture. Some of the most important Museums of India like the National Museum, New Delhi, Indian Museum and Victoria Memorial Hall, Kolkata, Salar Jung Museum, Hyderabad, Allahabad Museum, Indira Gandhi Rashtriya Manav Sangrahalay (IGRMS) Bhopal and the 3 National Galleries of Modern Art at New Delhi, Mumbai and Bengaluru respectively function under the control of the Ministry of Culture in various capacities. Apart from these, the Archaeological Survey of India also has site museums at 44 locations spread throughout the country in proximity to important archaeological sites.

Implementation

In the first phase of the digitization project the Jatan software has been implemented in 10 selected Museums of the Ministry / Archaeological Survey of India as detailed below:

- National Museum, New Delhi
- Indian Museum, Kolkata
- Victoria Memorial Hall, Kolkata
- National Gallery of Modern Art, New Delhi
- National Gallery of Modern Art, Mumbai
- National Gallery of Modern Art, Bengaluru
- Allahabad Museum
- Salar Jung Museum, Hyderabad
- Nagarjunakonda Museum
- Goa Museum

Source: https://www.india.gov.in/spotlight/national-digital-repository-museums-india

JATAN - Homepage

**JATAN: Cataloguing and Digitization**
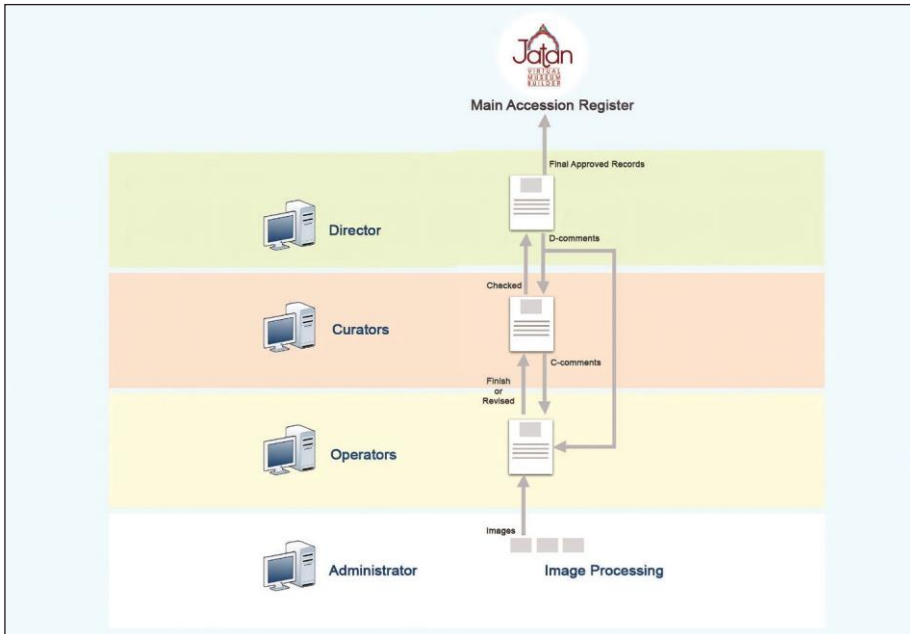
JATAN: Director ⟶ Curator ⟶ Operator ⟶ Administrator

In another collaboration, MoC partnered with C-DAC and launched the corresponding mobile app, *Museums of India*, on the occasion if International Museum Day (18th May) 2022. The app can be downloaded from Google App store, and supports features like search & retrieval, access to 3D interactive objects and category-based browsing. One can mark favourite objects and share the link on social media platforms.

The National Digital Repository of Museums is managed using Sanskriti Digitalaya (Open Archival Information System) and e-Sangrahan (Data Acquisition Tool). The C-DAC organizes special training programmes for the museum curators and staff involved in the documentation activities of these museums in which they were trained to use JATAN software and digital technologies.

The Museums of India Mobile App can immensely benefit students, teachers, tourists and scholars as the museum collections are now easily available on their fingertip.
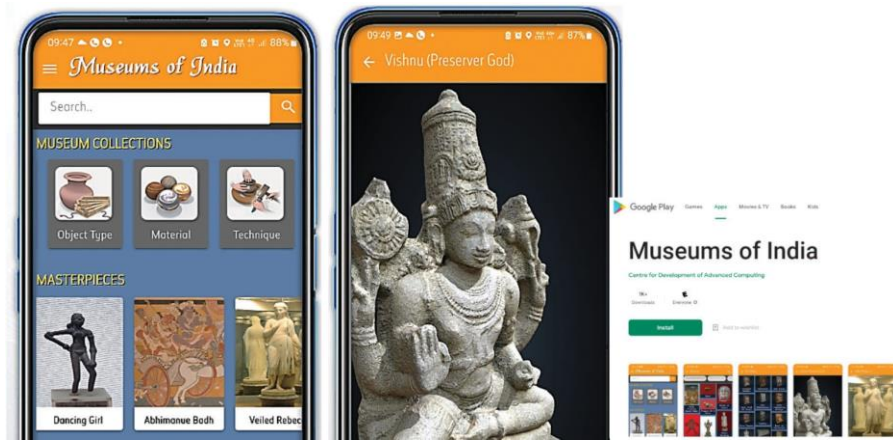
Some essential points

1. Ensure long-term safety, care, storage, temperature control and preservation of all collections.

2. Undertake stock-taking annually (or at least bi-annually). Physical verification, particularly, all high value objects must be undertaken twice a year.

3. Encourage use of collection management software (instead of multiple excel sheets).

4. Undertake digitization of all the collections. A central uniform digital collection repository for India is suggested.

5. Promote better collection access and wider research opportunities for students, museum professionals, heritage practitioners & conservationists.

ANNEXURE:

Popular CMS's

Listed below are some Collection Management Softwares widely used by cultural institutions globally:

i. *TMS collections and eMuseum*

TMS Collections, an easy-to-use browser-based application designed for collections, content, media, exhibition, and loan management. eMuseum, a publishing program, pulls information directly from TMS and migrates the data into existing templates. eMuseum translates information from TMS into any web content management system. The Seattle Art Museum built their online catalogue in The Museum System (TMS).

ii. *Vernon CMS*

Vernon CMS accommodates mixed collections, including social history, natural history, archives and library collections. The National Trust (NSW), Maitland Regional Art Gallery, Mosman Art Gallery in Australia use the Vernon CMS.

iii. *Sofie*

Sofie is owned and developed by Västerbottens Museum since 1991 and is Sweden's most used collection management system for museums, local history societies and archives since the mid-1990s.

iv. *Museum Plus*

MuseumPlus, the browser-based, comprehensive and globally used CMS developed by the Swiss zetcom Group. It offers state-of-the-art technology combined with a highly configurable frontend.

v. *e-Hive*

eHive is a web-based collection cataloguing system. It makes cataloguing and publishing of your collection easy and affordable. E-Hive is automatically updated and backed up by Vernon CMS. Port Macquarie Historical Museum, Port Macquarie; Miss Porter's House, Newcastle; Eskbank House, Lithgow; Fleet Air Arm Museum, Nowra.

vi. **Modes Complete**

Modes Complete is flexible and easy to use, it can be installed in single-user or multi-user (networked) configurations. It is the most widely-used collections management system in the United Kingdom.

vii. **Collections MOSAiC Plus**

MOSAiC initially developed in conjunction with Museums Australia (WA) in the 1990s. It is currently in use by over 650 sites in Australia.

viii. **Collector Systems**

Collector Systems is a cloud-based collection management system for museums, trusts, foundations and historical homes.

ix. **Past Perfect**

PastPerfect is a US based software for collections archiving. It is used by the Museum of Education (UNE), Saumarez Homestead (National Trust); Dakshin Chitra (Chennai).

CURATORIAL PRACTICES AND RESEARCH

A museum is a repository of stories, spaces of contemplation, aesthetic representations, and national discourses. The **curatorial practice defines** the way in which content is shared and presented in a museum. The curator establishes the concept, theme, script, documentation and prepares content for the panels, labels and other written materials. In consultation with the designer, the curators also develop design storyboards, graphic systems, supervise construction of support material, installation or mounting of exhibitions and more (UNESCO ICOM 2004).

Who is a curator?

The word curator comes from the Latin curo or curare which means to care, to see, to worry about. A curator is then a person that who cares for something. For our understanding this can mean to care for the collection of a museum. To be able to care a specific collection, **the curator needs to be a specialist in the particular collection and its subject matter.**

National Museum, Delhi: Buddha Gallery with relics

The curator's education and experience on the specific subject makes them more qualified to steward and present the collection than a layman off the street. They need to be able to study the collection, sort through it, talk to other specialists about it and most importantly, continually try to expand on their own knowledge of the subject. Once the curator understands the collection's subject matter, the curator then has to make decisions on the artefacts that might need conservation and special care and consider the narrative of the collection and what might be missing from it. Identifying the pieces that may be missing from the collection then leads to filling those gaps through acquisitions, commissioning, exhibitions, or programming.

A curator also **arranges the collections in rooms and presents them to the public**. Beyond just the display and exhibition of the objects, the curator needs to consider writing books, essays, blogs posts, labels, giving lectures, training tour guides, writing press releases, and talking to the press to effectively engage with the public and disseminate knowledge about the collection.

A curator's job is to bridge the gap between the material that they are presenting and the people that they're presenting it to. Some things are more self-evident than other and it's the job of the curator to make the decisions on how much interpretation they need to do and how much of it can be left to those engaging with the collection.

To be able to do this, the curator needs to **have an understanding of their audience**. They need to be able to empathise with their audience and provide the best tools for

National Museum, Delhi: Central Asian Antiquities, Hall No 1

CSMVS Mumbai: A section of the exhibition 'India and the World: A History in Nine Stories'

them to have the best experience with the material that is being presented to them. It is important to remember, especially in a country like India, that the audience will be diverse with vastly different needs. A curator's obligation is to try and address as many of those needs as they can, responsibly and to the best of their ability. You can try to create labels, guides or interactive activities especially for kids, or audio tours and guides created for people with special needs.

The Study of Collections and Presentation of Collections:

Using Neil MacGregor's iconic History of the World in 100 Objects as a reference, museums can understand how to build a narrative of their collections. It is also an example of how the collection or exhibition of a collection can be presented to the public. *A History of the World in 100 Objects* was a collective project between the British Museum and BBC Radio where they weaved the narrative of human history through the artefacts that we leave behind. The radio show, that was later converted into a book, handpicked artefacts from the British museum collection dating from 2,000,000 BCE to 2010 CE.

The important takeaways for curators from this example are

1) **How to create a narrative from your collections:**

    a.   Here MacGregor highlights that not all human civilizations had texts, but they left behind their mark on history through the artefacts that they left behind.

He found a new way to engage the public on artefacts that the British museum already had while also exploring the concept of civilisations that are not spoken about as much because of the tendency of historians to focus more on civilisations where there is textual evidence.

b. Through this MacGregor has explored a pre-existing collection and come up with a unique way to combine artefacts and tell their stories. A large part of curation is looking at the collections and finding new perspectives to present to the public.

c. To be able to effectively produce the new perspectives of a collection, the curator needs, if they are not already, become a specialist in the subject matter of their collection. It means constantly researching the collection and finding the many stories that each piece of art and artefact has to tell and showcasing that story.

2) **He used radio and published book formats to tell the story of these artefacts**

a. Using the various means of media that exist is recommended to be able to reach a larger variety of people.

b. Today some tools that are available to curators are: social media platforms like YouTube, Instagram, and Twitter; newsletters; mailing lists; blog posts; print and digital ads; books; podcasts; and the press. While not all of these mediums need to be used to engage with the public, using a variety ensures that there is wider reach of the collection that you are presenting to the public.
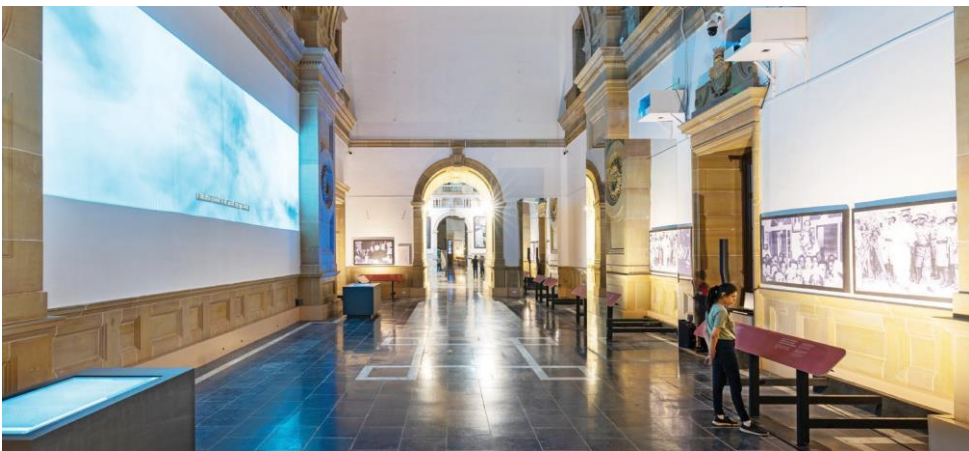
Victoria Memorial Hall, Kolkata: Commemorative exhibition on Netaji Subhas Chandra Bose

Victoria Memorial Hall, Kolkata: Commemorative exhibition on Netaji Subhas Chandra Bose

Exhibition:

After the process of researching and building a narrative for the collection, the curator needs to consider the presentation or the exhibition of the collection. This is explained in detail in the section below.

● **Planning**

Exhibition planning can be defined as activities that will help (a) determine the aims and feasibility of the desired project, and (b) organize the exhibition process, taking into account the available human, technical and economic resources as well as timelines and cost estimates.

■ *Objectives of the display or exhibition*

The design concept focuses on what the museum wants to achieve with the exhibition. Some questions to consider during this process are: do we want to enhance the aesthetic features of the objects in the exhibition? Do we want to assess and communicate their scientific or historical importance? Should the exhibit focus more aesthetics or the educational aspects of the collection?

> **The five stages in the design process:**
> 1. Planning
> 2. Research/Interpretation
> 3. Design
> 4. Production
> 5. Installation
>
> *Source: Patrick J. Boylan. 2004. Running a Museum: A Practical Handbook. Vol. 231. ICOM-International Council of Museums (http://unesdoc.unesco.org/images/0014/001410/141067e.pdf).*

■ *Target Audience*

In addition to the necessary understanding of the museum's community, when developing an exhibition project, it is also advisable to identify the target group or groups in relation to relevant factors, taking into account the fact that any audience is made up of many and varied types of individuals, with differences in ages, levels of education, tastes, and interests. Obviously, a museum aims to serve as wide a cross-section of the local population and other potential visitors as possible. However, it will probably not be possible to satisfy equally all the different interest groups within an audience.

Knowledge of the audience also enables the designer to plan the necessary circulation spaces and clearances, as well as spaces for rest and relaxation.

■ *Feasibility*

Exhibitions, as any other museum programme, must undergo a thorough study of the possibilities before the final policy decisions are taken.

Exhibitions are the material outcome of a combination of many diverse skills, and much knowledge, expertise, and experiences, coupled with taste and sensibility. The participation of different specialists will be necessary to achieve this, but not necessarily from the beginning.

> **Factors to be assessed and taken into account in an exhibition feasibility study:**
>
> 1   The objects to be displayed: availability, conservation and security issues.
>
> 2   The space available: size, access possibilities, including during installation and for disabled visitors when the exhibition is open
>
> 3   Available staff resources: in-house staff, outside contractor or consultant, or a combination of the two.
>
> 4   Timing: within the museum's overall programme of exhibitions, events and other activities, time requirements for planning and installing.
>
> 5   Cost: estimated project budget required, including construction, transport, publicity, maintenance and dismantling.
>
> 6   Who should be the core exhibition team, and how this should be organized.
>
> *Source: Patrick J. Boylan. 2004. Running a Museum: A Practical Handbook. Vol. 231. ICOM-International Council of Museums (http://unesdoc.unesco.org/ images/0014/001410/141067e.pdf).*

It is advisable to start planning the activity with a basic or core working team that will include the specialist curators or curators, the designer, the conservator, and the education officer. Within this small group, a coordinator will be assigned as Exhibition Project Manager. In this initial stage, tasks will be assigned to each member according to their expertise.

Allahabad Museum, Prayagraj: Early Stone Sculpture Gallery

It is likely that only large museums with large exhibitions and a big enough budget will make possible having the above ideal exhibitions project team.

Many institutions now also prefer to work jointly with an outside contractor. In a medium to small size museum, it is more likely that most of the projects of the museum will be contracted out. In this scenario, a number of suitably qualified and experienced design, costings and a proposed timetable for the different elements of the job, and the contractor's proposed fee for the design and exhibition management will be a part of the team.

Likely make-up of the exhibition project team
(what designers call the 'exhibition team', 'exhibition committee' or 'work group')

This is likely to include some or all of the following categories of staff (or outside consultants), depending on the size and nature of the proposed exhibition or new display:

Administrative	**Professional**	**Technicians**	**Craftspeople**
Board members	curator(s)	photographer	preparators
director	conservator	lighting engineer	electricians
project manager	designers(s)	sound engineer	mounting team,
	education		etc. security
	specialist		engineer

Source: Patrick J. Boylan. 2004. Running a Museum: A Practical Handbook. Vol. 231. ICOM-International Council of Museums (http://unesdoc.unesco.org/ images/0014/001410/141067e.pdf).

If the project is carried out in-house, there needs to be an in-house Design and Exhibition department that creates a plan for the exhibitions as well as costings at the planning stage, as well.

Budgets should include realistic estimates of not just the money required but also the human resources, material and time resources that will be required.

Allahabad Museum, Prayagraj: Medieval Sculpture Gallery, No. 1

An Exhibition project manager who becomes the contact person between the core group and the in-house or contractor's team can either be the curator or a manager assigned specifically for the task depending on the size and staff of the museum.

For very small museums that may have trouble hiring a contractor for the exhibition planning, design and construction, collaboration with larger institutions or universities for help with the above is recommended.

The main objective of the planning team should be to produce a written document that sets out the exhibition's objectives and goals, concept, target audience, working team and method of feasibility study results, description of the planning process, timing and draft budget.

■ *Developing the Exhibition*

Once the exhibition brief has been approved, the members of the team move on to developing the details of the concept, particularly the proposed objects, data and information that will be presented in an exhibition.

The preparation and development will include the special research by the curators to update the knowledge and interpretation of the collections and the themes that will be included in the narrative of the exhibition.

Parallel to the research and development, there also needs to be research done by the design team, education specialists and the marketing staff into the actual and potential audience and different approaches to interpretation and communication.

There are two possible approaches to the creating the story or the theme: the first is via a more descriptive storytelling method and the second is storyboarding, something adapted from filmmaking to create a visual plan of the exhibition. This aims to help the document be a comprehensive document that lists, in strict sequence, the different sections of the exhibition. The themes and sub-themes need to be listed and classified hierarchically. The document should contain details of objects or artifacts to be used, graphic material and all supporting elements such as dioramas, models, replicas and hands-on units.

Creating the Planning Brief

The Planning Brief for a display or exhibition aims to help the exhibition process by clarifying goals, the exhibition concept, time schedules and the human and financial resources needed. It is also most useful in presenting the project before decision makers, patrons or Boards and is also a basic tool for fund raising.

Typically the following will need to contribute to the development of the planning brief, and all subsequent stages in the exhibition process:

1 **Decision makers, particularly the director and Board or Ministry:** for official approval and general administrative support
2 **The project manager or general coordinator:** coordinates the initial process and acts as a link person between different specialists
3 **Specialist Curators for the subject area:** research and determine the concept and are the main people responsible for the content and exhibition brief
4 **Conservator:** advises on general and special conservation requirements
5 **Designer:** advises on general design and interpretation solutions and on the effective use of space
6 **Education specialist:** advises on general educational aspects, such as relating the displays to the school curriculum, and communication matters, such as readability in relation to literacy level
7 **Buildings and Security staff:** advise on all aspects of the use of the building including such issues as safe floor loadings, access for equipment and contractors, as well as the safety, access and security aspects of the project
8 **Administrative or Finance staff:** help to prepare a first estimate of costs and labour and monitors the budget throughout the whole process, also contract and purchasing details for all works and supplies, including equipment, materials, outside contractors, freelance or consultant and temporary staff

Typical responsibilities of the curator in relation to exhibition development

Primarily the curator's duties are to:

1 Establish concept
2 Develop thematic and scientific script
3 Select objects or works of art and illustrations
4 Carry out or supervise necessary documentation
5 Write information panels and label content, and other written information
6 Advise designer in developing design storyboard
7 Advise designer in developing graphic system design
8 Supervise development of graphics
9 Supervise construction of support materials
10 Supervise installation or mounting of exhibition
11 Write the catalogue or guide

However, this needs to be a team effort, and it is advisable that the following team members should also participate with the curator(s): specialist external advisors on thematic issues, an interpretation expert, a documentalist, a conservator, and a museum educator. The designers may be invited but may not participate so actively at this early stage

Source: Patrick J. Boylan. 2004. Running a Museum: A Practical Handbook. Vol. 231. ICOM-International Council of Museums (http://unesdoc.unesco.org/images/0014/001410/141067e.pdf).

■ *Exhibition Systems*

Large museums may have the budget to have modular prefabricated exhibition and display systems that include showcases, movable walls, display screens and panels with multiple uses. This can be a part of their permanent exhibits as well as be adapted into a space required for temporary exhibits. Smaller museums may need to construct display specifically for their exhibitions which can be done in-house, if the facilities exist or be contracted out. Once the basic display cases have been constructed, the smaller museums should consider storing and re-using them as the need arises. The main design element to keep in mind for the display is that to find the right balance between objects and their designed setting; the display systems should not overpower the objects themselves but rather aid in their viewing.

National Museum, Delhi: Exhibition on Company Paintings

There are three vital elements in the design process to consider:

a) The importance of preventive conservation: the conservator's presence during the designing process essential for the safety and success of the exhibition

b) Don't underestimate the security and conservation requirements for the objects on display. Also consider safety and conservation of the objects when in transit (whether from storage to the display or being shipped halfway across the world as part of an exhibition)

c) The need to consider future exhibition maintenance when preparing the design, particularly that circulation and resting areas will need to be regularly cleaned along with the showcases.

■   **Production and Materials**

This refers to step in the process where the manufacturing and fabrication of the different elements of the exhibition will happen. This entails building work and specialized production. The first covers activities such as masonry, brickwork, plasterwork, basic electrical, video and audio installation, wiring and fixed furniture manufacturing, while the second includes more specialized work such as graphics, reconstructions, model-making, artwork, etc.

Once all building work, electrical wiring, decorating, wall, floor platform and panel fixing, and fixed showcase assembly has been completed the free-standing showcases and wall-mounted furniture and exhibit structures are put into place. The working area then has to be thoroughly cleaned, including the glass or acrylic glazing for cases and other display units, and the lighting is tested.

Then the fixing of title panels, other text and graphic units, illustrations and photographs can be carried out by the design team or contractor, after which the installation of the original objects by the curators or conservators can begin. Any costume figures are dressed at this stage and finally the lighting is adjusted and tested for both effectiveness in terms of illumination, and of safe lighting levels according to agreed conservation needs. Finally, the curator, conservator, education specialist, designer and any other specialists, and usually the director also, review the display or exhibition and approve the final result. After this the showcases are closed and there is a further full cleaning of the exhibition space ready for the opening to the public.

National Museum, Delhi: Exhibition on Company Paintings (Botany section)

Allahabad Museum, Prayagraj: Modern Painting Gallery, No. 2

Exhibitions of Note:

- India & the World (National Museum, CSMVS)
- A History of the World in 100 Objects (British Museum)
- Kimono exhibition (V&A, London)
- March to Freedom (DAG, Indian Museum)
- Art Basel
- Venice Biennale

Suggested training and capacity building:

The role of training in strengthening the capacities of curatorial team and its activities is crucial. The museum must provide regular trainings, capacity building and educational enhancement initiatives.

- Trainings in **collection (procurement, management, standards and documentation); research** (methodology, tools and dissemination); **loans, inventory control procedures, cataloging;** museum recordkeeping systems and techniques; information communication technologies **(ICT) tools in museums** would be valuable.

- Workshops on designing and monitoring **collaborations;** establishing meaningful partnerships – knowledge, content and social media management; drafting cooperation agreements and writing grants. These skills will allow curators to be better equipped to handle the many requirements of caring for a collection. Grant writing in particular promotes a skill that is essential for curators wanting to look for outside sources of income to help run the museum.

● **Research fellowships** for curators, their team and academic institutions to encourage research and publications.

● In-house **mentorship programme** for young curators.

Research and Documentation:

Research is integral to the work of museums, and is indispensable for developing the detailed stories of objects in the collection ('object biographies'), exhibitions, publications, and even social media engagement. This is an area that museums in India must emphasize more than they do at present. Museums must **promote an enabling environment** for research and encourage its staff to undertake research projects.

A **designated research space** within a museum to view, study and examine collections must be offered. It should be comfortable and easy to access for the expected numbers of researchers, including, those with special needs. Utilities and infrastructure to support research needs must be offered. Including, publications, journals, online catalogs, and research tools. In addition to, ensuring electrical outlets, internet, wi-fi for accessing the catalog management systems, ICT tools and any other pertinent utilities.

Training in planning, design, implementation, and dissemination of research would help staff overcome research barriers and support more meaningful research initiatives.

Museum curators and their team could research items and artifacts to procure them for the museum (document - its origin appearance, location), aspects related to the identification, authentication, appraisal, history and provenance of the collections would be another research area.

Allahabad Museum, Prayagraj: Wooden Art and Textile Gallery, No. 2

Salar Jung Museum, Hyderabad: A section of a travelling exhibition on Sardar Patel

Some pointers on research

● Research should find ways to promote and provoke dialogues through participatory methods. Sharing different perspectives, incorporating different points of view acts as a powerful integration and research tool. This can be done by bringing curators together to exchange ideas through summits and symposiums.

● Research by museum personnel must be in accordance with the accepted legal, ethical, and academic standards and support the museum's mission. The materials analyzed and subsequent research (including, publications) would constitute the permanent record for the object.

● Research on human remains and items of sacred significance must be conducted in accordance with professional standards while taking cognizance of the interests or beliefs of the community involved.

● Rights over the research material would remain with the museum for documentation, presentation and exhibition purposes.

● Publications by the museums should be accurate and responsible. They must not compromise the standards of the institution.

● Research should be peer-reviewed and published in high-quality journals. Contributions of all collaborators must be cited.

● Collaborative research should be encouraged. Different teams bring enriching perspectives and diverse competencies. Shared expertise of museum personnel can be utilized for enriching cooperative consultations.

Example:

Best practice in research that contributed to an exhibition.
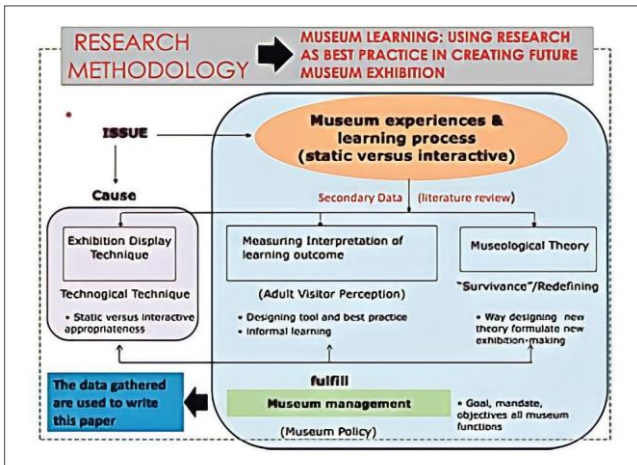
Source: MARVEL Museum Actively Researching Visitor Experiences and Learning by Griffin, Kelly, Savage & Hartherly (2005). Questionnaires about the exhibition were tested at the Australian Museum and the Royal Botanic Gardens, Sydney

'Ghare Baire' exhibition in Currency Building, Kolkata, restored by Archaeological Survey of India

Acting as a sensitive filter between community thought, ideas and stories, the curatorial practices contribute to the museum's evolving narratives and its myriad representations in the world.

A Textile exhibit in the National Gallery of Modern Art, Bengaluru

EDUCATION AND OUTREACH

Museums remain some of the most visited cultural venues of the world. Museums are social spaces where we gather, meet, learn about ourselves and each other. It is where we learn about our past and re-imagine our futures. They are dynamic inter-disciplinary spaces where education and audience engagement are at the heart of any museum's diverse activities.

Schools, colleges, and universities are important educational institutions, but museums play an equally important role in educating the public. Museums are important educational institutions because they provide a tangible way to learn about history, art, and other cultures. They also provide an opportunity for hands-on learning experiences that cannot be replicated in a classroom setting. This can be very beneficial.

Museum outreach is a broad term that encompasses the various ways in which museums can reach out to their communities. The goal of outreach is to make museums more accessible and relevant to the people they serve.

There are many reasons why museums might choose to engage in outreach programming. For some, it is a way to fulfil their mission of serving the public. Others see it as a way to increase attendance and support from the community. Whatever the motivation, outreach can be a powerful tool for museums.

There are many different types of outreach initiatives that museums can choose from. Some popular options include school programs, public events, community partnerships, and digital engagement.

School programs are a great way to introduce children to the world of museums and can supplement the curriculum. Museum educators typically work with schoolteachers to develop programs that are aligned with state standards.

Public events are another great way to engage with the community. They can be anything from open houses and lectures to festivals and workshops.

Public outreach programme in Indian Museum, Kolkata

Community partnerships are another way that museums can reach out to potential audiences and institutions. Partnerships can take many different forms, but they all involve some level of collaboration between the museum and another organization. Common partners include schools, libraries, and community centres.

Digital engagement is a relatively new way for museums to reach out to their communities. It involves using digital tools to connect with people who might not otherwise visit the museum. This can include things like creating a presence on social media, developing digital exhibitions, and offering online learning opportunities.

Such outreach initiatives can help to increase attendance, support, and even affect social change. The goal is to make the museum more accessible and relevant to the diverse needs of the community.

The objective of the chapter is to provide a platform for all museums to widen their potential for museum education and audience engagement. It will include, developing a framework and guidelines for museums to develop and implement their education and public engagement programmes.

A positive museum visitor experience is the key to attracting a wider audience base. Ensuring regular return visitors, involving more enthusiastic supporters and advocates

is key to its success. To achieve this, the museum and its entire staff need to plan and deliver Visitor Services and facilities that provide improved public access, as well as a better understanding and enjoyment of its collections. A satisfied visitor is proof of a well-focused and professionally run museum.

Today, museums face multitudes of alternatives for entertainment and education, including online streaming, social media platforms, and the easy online accessibility of content previously exclusive to museums. The future of museums – in a sense depends on securing current, but, more importantly, future visitors. The only way to do this is by understanding the audiences they attract as well as the ones they do not.

To become a visitor-oriented museum it is vital that you are first aware of the range of visitors that you currently serve (actual visitors), and who you wish to attract in the future (potential visitors). If you have a website, you will also have virtual visitors. Potential visitors are also those who are far less likely to visit museums, for example people with disabilities, families with young children and toddlers, people with low incomes and cultural minority or recent immigrant communities. Many of these people may not have experienced a museum before and so have little idea of what an attractive and engaging museum may offer them.

Public outreach programme in Indian Museum, Kolkata

One way to increase museum visitor footfall is by increasing the museum's online presence and creating a more user-friendly website. By making the website more user-friendly, potential visitors will be more likely to visit the museum's website and learn about the museum. Additionally, increasing the online presence will allow the museum to reach a larger potential audience.

Public outreach programme in Indian Museum, Kolkata

The museum websites should include:

1. A home page that provides an overview of the museum's mission, exhibits, and programs.

2. A calendar of events that highlights upcoming exhibitions and programs.

3. A section on the museum's history, including information on its founding, collection, and building.

4. A map of the museum's location and directions on how to get there.

5. A list of the museum's staff and Board of Governors or Trustees

6. A section on membership, including information on how to become a member and the benefits of membership.

7. A section on education, including information on school programs, teacher resources, and family activities.

8. A section on research, including information on the museum's library and archives.

9. A section on support, including information on how to donate to the museum.

10. A contact page with the museum's mailing address, phone number, and email address, timings, and ticket prices.

Demographic trends at the museum

Everyone can be categorized by different criteria and falls into different groupings as given below.

Age - children, young people, adults, older people

Gender - male, female (museums may consider listing other options for inclusivity)

Ability - wheelchair users, people with visual and or hearing impairments

Ethnicity - cultural minorities, recent immigrants

Socio - economic status - low-income families, people on benefits

Interests - art, history, science, nature

The common feature of each group is the specific needs and requirements which must be addressed. For example, a family with young children will need a different type of environment and facilities compared to a group of students on a school trip. Similarly, a wheelchair user will need access to all areas of the museum, including toilets and cafes, and people with visual impairments will need clear signage and audio-visual aids.

Public outreach programme in Indian Museum, Kolkata

To become a visitor-orientated museum it is essential to have a good understanding of the needs of all these diverse groups. This can be achieved through market research, surveys, focus groups and other methods of consultation. Once you have a good understanding of the different visitors, you can start implementing necessary changes.

Mapping Visitor Experience

The key to creating a memorable visitor experience is to understand what they want and expect. It is invaluable to know how your visitors perceive your exhibits and how they feel about their overall experience. Some ways to know more about the visitor's views and needs are:

1. *Get Visitor Feedback:* The best way to understand how visitors perceive your exhibits is to ask them. You can create a survey for them to complete as they leave. You can also ask them to fill out a survey at a kiosk. This is an effective way to get exhibit specific feedback.

2. *Get Staff Feedback:* Your staff are in the front line and are in the best position to offer feedback from visitors. Encourage your staff to keep a note of visitor feedback and to report any issues to you.

3. *Use Technology:* There are many ways that technology can be used to understand visitors. You can use CCTV to monitor visitor numbers and flow. You can also use it to understand how long visitors spend in each exhibit.

4. *Use Analytics:* Analytics is the practice of measuring and analyzing data of users to create an understanding of user behavior as well as website performance. Web Analytics is the analysis of users' activities, web pages, clicks, actions, events, flows and more, such as how many new users visited, from which countries, using which devices and browsers, whether they followed a link on a marketing campaign or an internet search. This is a great way to understand what visitors are interested in and what they are not.

5. *Use social media:* A great way to understand what visitors are saying about your museum can be through social media. You can use it to find out what they liked and did not like about their experience.

Visitor Surveys

1. It helps to get Visitors' Feedback about their experience
2. It helps to provide visitors' suggestions
3. It helps to know the choices of various demographic groups
4. It helps to make improvements in the museum
5. It helps to plan the upcoming exhibitions and shows

Indian Museum, Kolkata: Har Ghar Tiranga campaign

National Museum, Delhi: Anganwadi School Visit

The only way to confidently create short and long-term strategies around your museum is by understanding the members and guests who visit you. From planning your next exhibition and creating membership incentives to developing an effective marketing strategy, the only way to effectively reach your visitors is by understanding what their interests and preferences are.

CRM and CTR

Having an up-to-date CRM (Customer relationship management) is essential to any museum looking to connect and track visitor interests. CRM is a technique of gathering information about the customers, basic information that is normally included are

age, gender, income, marital status etc.; and in-depth information such as transaction history, interest areas, pattern of visit etc. Other than serving as a marketing tool CRM helps in maximizing fundraising. The following ways are techniques for tracking and updating the CRM:

● **Feedback surveys** give museum's a unique opportunity to learn about guests' past visits, interests in future visits, and other valuable information directly from the people whom they aim to serve. Providing a feedback survey ensures that a museum, is gaining insight into reliable data about the strengths and weaknesses of your visitor experience. There are two ways to do this. The first is by providing an online survey, and the second is by providing an in-house survey by means of filling in printed forms, or via on-sight kiosks or tablets.

● **Online surveys** are effective because you can reach every single guest or member who provides their contact information. Encouraging memberships and online accounts that require emails are a solid way to build email pools.

● **On-site booths or tablet surveys** are great because they ensure that guests are giving the most recent and authentic recollection of their experience. Additionally, it makes it much easier for guests to see the survey at the end of the exhibit tour as opposed to the possibility of a survey getting lost in an email inbox.

National Museum, Delhi: Anganwadi School Visit

Having an updated CRM is beneficial because:

- **perience and support:** it helps in managing visitors and interaction through various communication channels. CRM software's provides a 360-degree view of members and returning visitors.

- **Fund Management:** CRM provides essential management for funds. By tracking donation types, frequencies, and forecast revenues, generation of invoices, donation receipts, and tax receipts for donor's financial deduction.

- **Event Organisation:** Events can be organized promptly using CRM software. It provides effective staff management. It deals with logistics efficiently to book spaces, furniture, equipment, and consumable.

- The CRM helps build relationships with the visitors, members, and donors. The software helps in planning, budgeting, and executing. By constantly updating the CRM database museums can target potential visitors by consistently and actively managing leads.

The general template of CRM template should include Name, Address, Provenance, Contact details, Activities for volunteering, Membership details (if member), and events that would interest them.

National Museum, Delhi: A session with differently abled visitors

Culture Track Report (CTR):

Culture track is a study focused exclusively on approaches and conducts of the cultural users/consumers. It motivates participation of users in different ways. The CTR records the behavior of the audience and their expectations. With the help of this museums can diversify their space which can be driven by leisure time and technology.

CTR surveys are required since they will eventually help in asserting programming efforts with reference to the interest of the audience. It allows museums to design the galleries or exhibition spaces in a manner that can attract the audience.

Monitoring of the events means meeting the requirements of the event, which are conceived in advance. The process of monitoring can be different and creative, such as visitor experience forms, audio video recording for experience sharing and promotion.

Customer relationship management (CRM) is a similar process to CTR to keep a record of the visitors which helps museums to maintain not only the relationship with visitors, but also to maintain and build a relationship with potential and existing investors.

Museum Outreach

Museum outreach programming is a way for museums to connect with their communities and bring people in to learn about and experience the museum's collections and exhibits. The goal is to make the museum more accessible and relevant to the diverse needs of the community. Some ideas for museum outreach programming are:

1. Collaborate with local schools to create museum field trips that are tied to the curriculum.

2. Host free or discounted days for low-income families.

3. Sponsor a series of free public lectures on topics related to the museum's collections or exhibitions.

4. Create a docent programme whereby volunteers are trained to give tours of the museum. Docents are volunteer teachers who provide group learning experiences in the form of museum tours, demonstrations, or instruction in special activity areas.

5. Develop partnerships with community organizations to promote the museum to their members.

6. The concept of "Museum without Walls" could be leveraged whereby some exhibitions from the museum could be taken to venues outside the walls of the museum, and into more community driven venues.

7. Collaborate with community organizations to create programs that focus on specific topics related to the museum's collection.

8. Create a 'Friends of the Museum' program which involves a group of individuals who support the mission of the museum and who volunteer their time and resources to help the museum achieve its goals.

9. Digital collaborations such as Google Arts & Culture which is an online- and app-based collection of art and cultural content from around the world. It allows anyone, including students and teachers, to explore real-world collections, from the comfort of their digital device.

Collaboration

Collaboration is an important aspect of the operation of cultural institutions. Museums can collaborate with artists, galleries and curators, international exhibitions, fairs and festivals, and other cultural institutions to present exhibitions and educational programmes.

● They can make temporary exhibitions available to other cultural institutions.

● Museums can collaborate with both local and foreign counterparts. It can do so by sharing resources, exchanging best practices, and engaging in joint programming and exhibitions.

● Museums can create temporary exhibitions in the public space.

● They can organize travelling exhibitions.

● Museums can collaborate with other cultural institutions to organise performances and concerts, book presentations, educational programmes, conferences, and other events.

Educational Programming

Museum educational programming is a series of educational activities and events that are designed to promote learning and engagement with museum collections and exhibitions. Some examples of educational programming in museums include:

● Docent-led tours are led by a trained guide who provides interpretation and information about the exhibits in a museum or gallery.

● Educational workshops at museums are based on objects in the museum collections. However, museums may also offer workshops on topics such as art history or art

appreciation. Many museums also offer workshops for children, which may be focused on topics such as science, math, or literacy.

● School field trips to museums can provide an educational and cultural experience for students. Some museums offer educational programs specifically designed for school groups, and many museums offer discounted admission for school groups. Students can see artifacts up close, ask questions to the museum staff, and participate in interactive exhibits. Field trips to museums can be an excellent complement to classroom learning.

● Lectures and symposia in museums are often organized around a particular theme or exhibit. They can be scheduled as a one-time event or as a series. Museums typically partner with universities, scholars, and other cultural institutions to develop and host these events.

● Museums offer a variety of research opportunities - from internships and fellowships to volunteer and docent positions. Many museums also have research centres that offer grants and other opportunities for those interested in pursuing research in a particular area. Researchers often have access to the museum's archives, which can provide a wealth of information.

National Museum, Delhi: A guided walkthrough

● Learning kits that are specially curated & designed are also good example of community engagement of the museum spaces. They help motivate students by making learning fun. Museums can create such kits to create awareness and importance about the museum collection they have. Learning kits for differently abled can also be designed keeping in mind their specific needs and requirements.

Museums and Community

Museums can strengthen their communities by offering services and community driven experiences. Programmes and services with community involvement are additional tools for promoting a mutually beneficial relationship between a museum and the local community it serves. Afterschool programmes are popular ways, to bring the resources and skills of museum professionals to school and students. Museums need to strategically create and maintain this relationship.

The creation of community-driven-museums is a technique which can contribute to involvement and engagement of public with a museum. For example, creating their own exhibits with which they can directly contribute to the development of a community narrative or community driven museum. It also contributes to hands-on experience in development of galleries or education programmes within the museums.

Dealing with interaction during the pandemic

When museums cannot be accessed physically, they can create virtual tours of the museum using 360-degree photos or videos. Another option is to create an online database of the museum's collection that can be searched and browsed. Museums can also create online educational resources that can be used by teachers and students.

Cultural Spaces

The Ministry of Culture has also been tasked with the responsibility of developing 'Cultural Spaces' in 5 cities – Delhi, Mumbai, Ahmedabad, Kolkata, Varanasi by the end of 2023. Envisioned as safe spaces for community engagement and cultural exchange, these sites are to be inclusive and accessible to a broad audience base.

All museums that have active public programming and suitable facilities within their premises may consider incorporating performances, screenings, and other interactive elements in their programming so that they can – in addition to their function as

museums – also play the role of the custodians and promoters of the intangible cultural heritage of humanity. In an attempt to further disseminate knowledge about our history, culture and artistic excellence, each such 'Cultural Space' may develop a robust, annual public programming calendar. This will also augment the revival of traditions and rituals, celebration of local arts, crafts and cultural symbols and highlight the potential of our collective cultural capital.

Notice about a public lecture in Victoria Memorial Hall, Kolkata

CHAPTER | SIX

USE OF TECHNOLOGY IN MUSEUMS

Museums are using technology in a variety of ways to make their collections safe, operations efficient, and exhibits interactive and engaging for visitors. Technology not only helps in the efficient management of a museum and but also brings footfalls to the museums via younger generations, in whose lives technology plays a major role. From artificial intelligence (AI) being used to conserve and reproduce missing parts of a sculptures or paintings to digital-displays being used to provide need-based information in the visitors' choice of language. Technology is used by many departments across a museum, and is used in all spheres of audience engagement. Depending on the size, purpose of the museum, and the available funding, the use of appropriate technology aids in smooth functioning of a museum. Even projection mapping techniques are used in recent times in many museums for an immersive Audio/Visual storytelling while a combination of sensors, connected to customized software makes the art and artefacts interactive.

However, it is necessary to understand that technology, however sophisticated, should not be deployed gratuitously, and can never be a substitute for real artifacts. They only have the purely functional utility of providing the ability to showcase the artifacts in an educative as well as engaging way. It is also necessary to understand the challenges that come along when using technology. While implementing technology-based solutions in a Museum, the following measures should be taken:

1) Train the staff and develop skills for respective personnel.

2) An informed use of technology for audience engagement. Because a museum's audience is diverse, necessary precautions must be taken to avoid employing technology to create a barrier. It then makes sense to emphasise that technology utilised to improve the visitor experience should be simple to use and available to everybody. The pursuit of using technology without knowing the needs of the visitor would only create a digital gap among the wide range of people who come to a museum.

Finally, it is critical to recognise that the museum market is not huge, and financing for large-scale technology deployment is limited. As a result, museum-specific innovation and technical progress have some constraints. It becomes critical to use and personalise available software, apps, and technology established for other industries. Curators of museums must continually investigate new technology created in other disciplines for inventive applications in museums.

User Interactivity and Experience

The user experience at a museum is determined by how easy and pleasing is the visitor's experience. The user experience begins prior to their visit to a museum by building interest in the Museum and the Exhibition through online advertisements, social media posts, and the museum's website. It continues throughout the visit to the museum by enabling a seamless presentation of information and making navigation a breeze. User experience is then extended into the post-visit experience by sending updates and event information to entice visitors to return. Technology here becomes a tool to improve the user experience to leave lasting memories. A good user experience ensures word of mouth, reviews and repeat visits to the museum.

Source: https://www.blastanalytics.com/testing-personalization
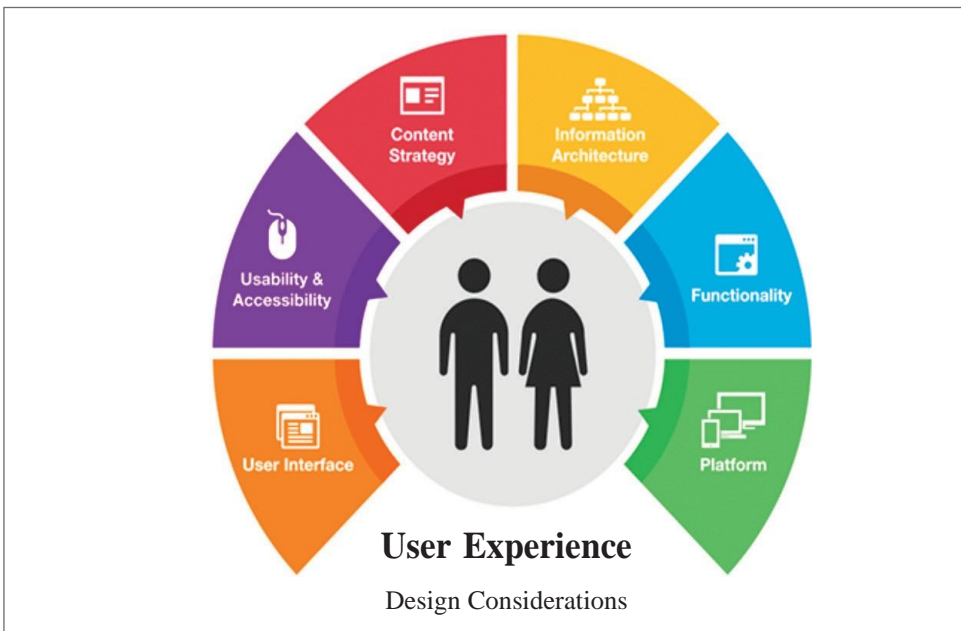
Below is a list of tools, techniques used in museums around the globe to equip and cater to the average museum visitor today. However, adding such tools or technology should be carried out after a proper analysis of visitor demographics, funding, and build and maintenance capability at the museum, and should be implemented only when appropriate.

Website:

A web-presence catered by a well-designed website generates excitement for the audience and creates expectations for their visit to the museum. Museums can utilise the internet to sell tickets, conduct research as well as sell products and services. It also acts as a tool of communication and advertising, which is why it should be constantly updated. A museum website can host web-based virtual visits for museums to allow visitors from across globe without the need for travel. It should be kept in mind that in recent times, the museums that have effectively showcased their treasures on the virtual platform through internet technologies have been the most successful at attracting visitor footfall in their physical spaces.

The Internet can also be used to promote a museum's mission and events, as well as stimulate public attendance and participation in the museum's activities. All of this, in turn, leads to increased public awareness along with community support through volunteerism, and donations.

Museum Apps:

A mobile app connects the museum with the visitor, before, during and after their visit to a museum. Usually, large museums build their own customized mobile applications, whereas smaller museums utilize less customizable and easy version with tools like Appypie (*https://www.appypie.com/*), allowing a Museum to build its own app without coding. However, for a professional and a complete solution, a software firm should be consulted to create a mobile app.

A customized mobile app can be used to help a potential visitor to:

- Plan visits.
- Buy tickets.
- Mark their subjects of interest prior to his/her visit to get an self-guided, personalized tour with an interactive map.

● Experience audio-visual (pictures, video and voice) narratives for the artefacts when standing in front of it, within the museum, triggered by GPS, integrated with a beacon system.

● Use live language translation of information to make it more accessible.

● Use the mobile phone camera to scan a QR code or integrate with Google-image recognition to get automatic feed of information about the artefact on their phones in form of pictures, videos, 2D-3D animations or further reading.

● Get notified on the phone and find exit paths on the app in case of fire/emergency.

● Can connect and track his/her co-visitor on the phone-app.

Additional features can be developed on the Museum's phone application to engage the visitors post their visits. Technology helps stay connected with your audience to entice them for repeat-visits at much lower costs.

● Receive periodic updates on events/new exhibitions post visit

● Receive information about upcoming events, donation drives, and membership details.

● Receive regular online quizzes to keep learning about the artefacts, history and induce healthy connection with the museum.

Light-and-Sound show based on Projection Mapping technology at Victoria Memorial Hall, Kolkata

It is important to note that for using mobile apps within Museum, a strong wi-fi network should be provided to avoid any negative experience.

Exhibits

Museums have been using technology to enhance the visitor experience for a while now. There is constant research conducted in universities, independent studios, and museums to engage visitors and to provide them with an invaluable educational and entertaining experience. It is not always necessary to get an outside agency for the implementation. Other approaches that could be explored include, but are not limited to, crowdsourcing and collaborating with universities and other museums. Some of the technologies described below are used to increase curiosity and playfulness while disseminating information in a museum. It is important not to blindly use any technology. The 'content and user experience' of the museum or the exhibition determines the 'interactivity' which further determines the 'approach', based on which 'technology and hardware' is to be decided.

Digital Displays :

Structured information about the artefacts becomes easy to convey with digital screens containing moving information and images. Digital information kiosks and screens are installed next to the special artefacts. There is a huge variety of choice for such displays from transparent screens to LED screens to projected screens.

https://m.kioware.com/news/self-service-resources/ touch_screen_interaction_in_benton_county_museum

https://www.caleidoscope.in/art-culture/iiad-students- faculty-digitize-the-national-museum-1
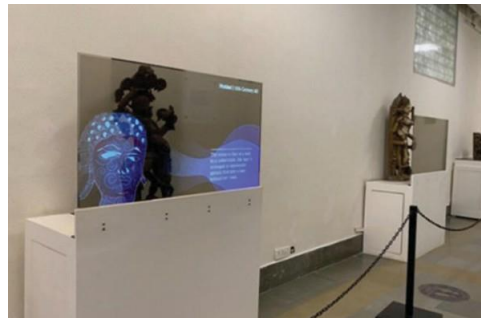
Images are for illustration only.

Video Walls:

Besides digital display screens, museums are also using projectors for displaying information and videos on large surfaces to give insights about the artefacts. Such videos complement the information written in text next to the artefact. Such video-wall set-up also allows to display images (dynamic and static) from other museums. Since production costs of such content is expensive, several museums of similar background could co-produce and share the resources.

https://windon1999.en.made-in-china.com/ productimage/IyEmWthjaAki-2f1j00ZAzERlysEVkI/ China-Holographic-Transparent-Projection-Film- Hologram-Glass-Film.html

Dinosaur Museum, Balasinor, Gujarat.

Images are for illustration only.

Interactive Kiosks:

Screens with touch-based technology, gesture recognition, or proximity sensors are gaining popularity around the globe in museums. Suck kiosks provide need-based learning about an artefact. Interactive kiosks provide easy technology-based interface for visitor engagement. Depending on the subject, space and funding, touch screens of various sizes could be installed where appropriate. However, it is important to note that such kiosks are used by single visitor and creates a bottleneck when visitors to the museum are in large numbers. An alternative for Interactive kiosks is creating interactive phone displays which is highlighted.

Images are for illustration only.

Phone Displays:

Phones have become an important source of information transmission between the visitors and the museums. As kiosks are created for single user interaction, personal smart phones, used by many people these days, help overcome this limitation. Phones allow museums to skip the expense of physical hardware set-up like displays and projections. Information is stored on cloud and accessed by any mobile phone. For example, to remove the clutter of information around the artefacts, QR-code based solutions can be created and deployed. The QR-code displayed next to the artefact is linked to a web page which hosts audio and video narratives and other external links about the artefact. When people scan the QR-Code link placed next to the artefacts, they are directed to a page, where they can explore the information based on their personal interest and available time.
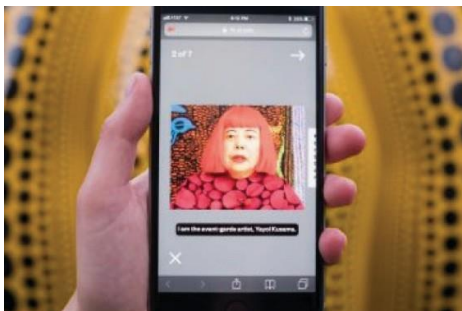
Images are for illustration only.

LED/Laser Projection Technologies:

Projection mapping is a special technique to display images on a non-rectangular 2D or 3D surfaces with help of a projector and a computer and software like Mad-Mapper, Resolume, HeavyM etc. Such techniques could be effectively used to tell stories by creating compelling, immersive museum spaces. Using laser projections on the facades of the museums and the artefacts inside the museums, an audio-visual show can be created for the audience. This technique has been very successful in ensuring grabbing the visitor's attention and imagination.

   Limited to a smaller surface area, projection mapping could be further integrated with touch and gesture technologies for an interactive projection wall. However, it is necessary to check the illumination in the room to consider projection mapping as a tool. Surrounding light determines the quality of projectors to be used.

https://www.avinteractive.com/news/projection/christie-laser-projectors-light-red-fort-11-04-2022/

https://www.intuiface.com/blog/5-best-interactive-wall-examples

Images are for illustration only.

AR/VR/MR are words often termed to suggest new multi-media tools for enhancing visitor experience in a museum. It is important to understand basic difference between the 4.
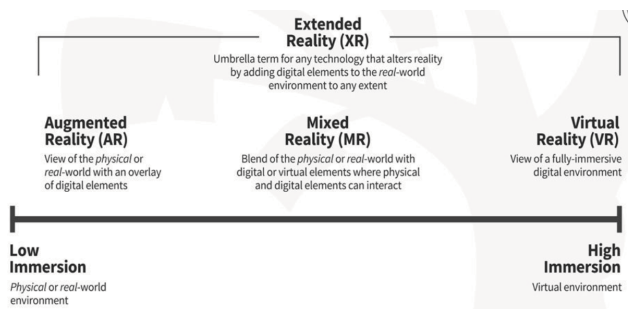
Augmented Reality:

The first method to gain popularity in the museum setting is augmented reality (AR). By scanning a code, augmented reality (AR) enables the display of curated digital content on a smartphone or other handheld device. AR helps visitors to have more individualised experiences. By deploying AR based information-display, Museums are personalising the visitor experience while relieving them of the burden of high hardware expenditures. AR provides additional layers of information in response to requests based on an individual's interest. Augmented reality aids visitors in understanding the context and history of a collection with help of digital 2D or 3D images.

There are many free softwares and programs available to host and create AR phone applications. For example, a free AR development interface provided by Google is called Google AR Tango. AR Tango has a huge community of developers and creators. The Google AR Tango can be used to develop animation, videos, 3D models, etc specific to each art or artefacts. The models are linked to a QR-code or an image. The code is displayed next to the art or artefact. The museum visitor can scan the code to view the 2D or 3D images on their smart phones.

Once the app is ready, it can be deployed on the app-stores. People not only within the museum and but from across the globe can download and use the application to learn about the museum, its art, and its artefacts.

https://www.alucansa.com/showroom/?ss=5_6_7_17_36&pp=augmented+reality+museum&ii=2213627

https://newsable.asianetnews.com/technology/google-tango-will-let-you-visit-a-museum-at-the-comfort-of-your-couch

Images are for illustration only.

Mixed Reality:

Mixed Realty (MR) is an extension of AR where the real and digital world interacts with each other. MR can be implemented on phones and on wearable devices. MR Glasses are special-purpose glasses, to view 3D images, are produced by famous technology companies like Google (Google-glass), Microsoft (Hololens) and Reliance (JioGlasses). MR is gaining popularity in museums spaces. MR devices allow visitors to see digital 3D models in real physical environment of the Museum. This allows Museums to build a narrative keeping the main physical artefact in focus with changing surroundings digitally. 2D or 3D images of the non-exhibited, stored artefacts can be displayed on the MR devices where the physical exhibition space is small.

https://www.researchgate.net/figure/MR-Museum-in-Kyotos-Kennin-ji-source_fig3_327261274

https://www.ocalagazette.com/art-history/

Images are for illustration only.

MR gamification with projection mapping has become very popular among the visitors because it presents knowledge in a fun way by combining the digital and physical worlds. A set-up using infrared sensors, such as Kinects and Azure, that measure body motions and are linked to a computer and a projector to change projections in the real time according on the visitors' movements. Such techniques could be used to create quizzes, interactive information displays. Projections can be done on walls and floors.

https://www.pattu.net/en/ghost-buildings/

https://thailandtourismdirectory.go.th/en/attraction/97969

Images are for illustration only.

Virtual Reality:

Virtual Reality (VR) is used for storytelling in a digital 3D or 360-degree world. VR is currently being utilised to create digital museum tours, make exhibitions interactive, and to bring narratives to life.

A digital 3D world is created by an 3D artist's or agency to assist in the storytelling. Agency will have internal team of story developer, software engineer, designers, animators, 3D artist, light-designer, sound engineer etc, to produce a quality output ready to be viewed on a VR headset. The team replicate the physical world or creates an imaginary world in 3D on software like Unity-3D, Unreal Engine etc. High quality content is recommended for a good VR Experience.

Museums provides VR headsets to its visitors to share the story of the subject in 3D or 360-degree immersive viewing experience. The quality of viewing experience varies on the headset, i.e., wired and unplugged. Newer generation headsets are high performance unplugged sets.

Once the content is developed, one can also view the 3D world online on various viewing platforms including but not limited to their private headsets, phone-based VR box and even on websites utilizing a technique called Web-VR.

Virtual Tours:

Post Pandemic when the movement and travel is restricted, virtual tours became popular. Virtual tours are created by taking 3D video and images of a physical space and sticking on a computer to generate a simulation of a real-world situation. Other multimedia elements, such as sound effects, music, voice narration, and text, may also be used to enhance the engagement.

Many websites like Google Arts and Culture hosts museums in 360-degree views from around the globe. Paid or free hosting service is determined based on the intent to generate revenues from such experience or not. Virtual tours are revolutionizing tele-tourism for audience who want to access famous sites sitting at homes.

Creating virtual tours is simple these days with the inexpensive 360 cameras available in the market. However, a special purpose camera set-up is recommended to achieve good quality of images.
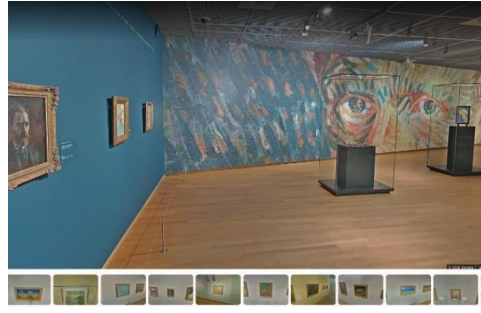
Images are for illustration only.

Selfie Kiosks:

Due to the increasing ascendancy of social media in our lives in the twenty-first century, the so-called 'Instagram' moment (or its equivalent in other social media platforms) has become a 'must have' during the exhibit trip, with social media now being the largest venue for human communication and connection. Kiosk set up is designed for visitors to click a picture to digitally 'try on' an exhibit or even insert themselves into a historic video/photo moment.

Images are for illustration only.

Immersive 360-degree Rooms:

Immersive rooms construct an experience that is absorbing and enjoyable by projecting visuals in the entire rooms on the wall, floors and sometimes ceilings. These spaces in the museum allow the visitors to soak in information in a joyful manner. For high quality output, i.e., clear visuals, high-lumens and contrast ratio projectors are required. A combination of 6 to 8 projectors, run over a server, achieves such a result.

https://medium.com/feral-horses/transforming-museums-and-galleries-digitally-part-3-the-immersive-viewer-engagement-in-digital-art-2241db091db8

https://www.teamlab.art/zh-hans/w/interactive_magnetic_field_theater/

Images are for illustration only.

Hologram Display:

Holography is best known technique to generate and display a 3D-image. Museums are using this technology to magnify and showcase popular artefacts in a 3D. Holograms are also being used to bring popular artists and personalities to life, digitally. Holograms could be projected on a single screen or multiple screens for 180-degree viewing to 360-degree viewing. Based on the requirement and size of display, the technology varies. It is necessary to keep in mind that Holograms created with projections, require a dark environment for best viewing experience.

*https://www.dw.com/en/hologram-mummies-reveal-their-insides-at-german-museum/a-44440631*

https://www.volkenkunde.nl/en/whats-on-0/exhibitions/aztecs/european-award-aztecs-sun-stone-theatre
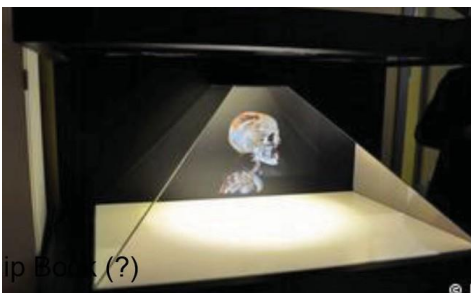
Images are for illustration only.

MUSEUM MANAGEMENT

Management is key to the effective functioning of an institution. A museum cannot operate or take care of its collections, exhibitions, education, or outreach in the absence of good management. The mission statement of a museum and its priorities shape the nature of management, resource utilization, activity design and personnel management.

Source: https://www.jcms-journal.com/articles/10.5334/jcms.197/'
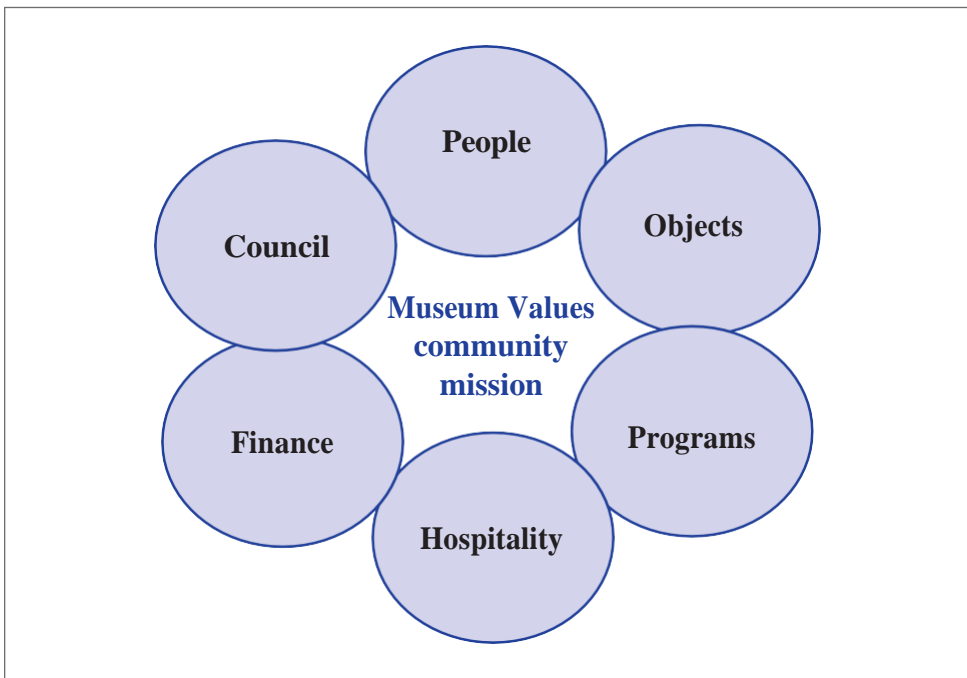
The overall management of museums can be broadly broken down into the management of Human Resources, Finances, Safety & Security, and Disaster Management.

1) **Human Resource Management**

The managerial structure of museums includes (three components, at least): administration, curation, and operations. The structure allows distribution of various tasks, while maintaining direct communication between each division. An open exchange, constructive assessment, creative thinking, and trust among staff members strengthen the capacity of a museum.

● *Museum personnel: key to effective management*

The employees of a museum are its most valuable asset. The success of the museum relies upon its personnel. Building and sustaining an effective team requires an examination of the diverse personnel needs, competencies (their education, recruitment criteria, turnover, wages, performance assessment), sustainability and personnel development.

● *Recruitment and Performance Management*

The museum scenario has rapidly changed all over the world, including India, in the recent decades. Accordingly, the profiles and demands of museum jobs have also changed, bringing new qualifications, skills, and experiences into demand. The need for new kinds of people – with a diverse range of training and experience in IT, public relations, mass communication, digital humanities, editing and publishing content, etc., to name just a few – has also made old Recruitment Rules outdated. This is something all museums should pay particular attention to – to update their recruitment rules in keeping with current needs, and to look for people from an interdisciplinary range of backgrounds and training.

To begin with, the recruitment of suitable and qualified staff in museums is critical. It is suggested that the job description for all positions and volunteers is clearly described and documented in official paperwork. The museum must address the safety, security and well-being of its staff for long-term retention, as well as, and find ways to keep them motivated. A process of performance review with a mechanism to determine appropriate compensations or appraisals should be undertaken. In addition to this, an annual or on-going recognition activity to applaud the efforts of outstanding staff members could be undertaken.

● *Training*

Providing regular trainings, capacity building and educational enhancement initiatives is an important component of human resource management.

Training and orientation on best practices in museum standards; museum collections and heritage management; research and publication development; health and safety hazards (ensure at least five personnel are trained in first aid); collaboration with universities and conservation laboratories; team management with appropriate recognition/reward mechanisms; fund-raising, grant writing and partnership development; socially inclusive museum practices may be offered. The important point is to cultivate a culture of continuous training and self-improvement through an updating of skills for museum professionals.

Institutions providing trainings/diplomas in heritage and museum management

The Centre for Heritage Management, Ahmedabad University; the Centre for Heritage Conservation (CHC), CEPT University, Ahmedabad; the Chhatrapati Shivaji Maharaj Vastu Sangrahalaya, Mumbai; the Indian Heritage Institute (IIH), Noida; the Bhau Daji Lad Museum, Mumbai; the Indira Gandhi Centre for Arts (IGNCA), New Delhi; the Indian National Trust for Art and Cultural Heritage (INTACH), Heritage Academy, New Delhi; Indian Institute of Management (IIM – Ahmedabad, Bengaluru); Indira Gandhi National Open University (IGNOU), New Delhi; the Kolkata Centre for Creativity, Kolkata; the Mehrangarh Art Conservation Centre (Mehrangarh Museum Trust), Jodhpur; the University of Mumbai; the National Institute of Advanced Studies, Bengaluru; the National Museum Institute, New Delhi; National Gallery for Modern Art (NGMA), New Delhi; the Nadar University, Delhi; the University of Kolkata, among others.

International workshops and trainings are conducted by the International Council of Museums (ICOM); the International Council on Monuments and Sites (ICOMOS); International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) on various aspects of cultural heritage management, conservation and research.

● *Uniform Ethics*

A museum's public responsibility involves ethical correctness, care and use of collections, as well as proper institutional management. The museum employees must not accept gifts, favours, loans, or other personal benefits that may be offered in connection with their duties.

2) **Financial Management**

Financial management ensure smooth functioning of the museum balancing the strategic initiatives directed by the management, while effectively managing daily financial operation by best utilizing its resources. To ensure a museum's sustainability, financial management is implemented through budgeting, fund creation, and utilization in a cyclical order. The governing body should make sure there are enough resources available to carry out and expand museum activities. All finances must be handled with professionalism and integrity. The governing body should have a documented policy describing the types of funding it may receive from outside sources or produce through its operations. Museums should maintain control over the substance and integrity of its programmes, exhibitions, and activities regardless of the source of funding.

● *Organization structure*

A clear organization structure for financial operations is essential for managing finances of a museum. Based on the size of the museum and its operations, a finance team is required to manage, maintain, and audit the accounting books, and to produce periodic financial reports. Every museum must have at least two members in their finance team.

A Financial Controller oversees preparation and supervision of the financial reports. Controllers are also responsible for the company's compliance with the law regarding taxes and other financial matters. They will be the ones who are directly presenting compliance documents and filing tax returns.

While the controller oversees the accounting department, the treasurer oversees the finance department. The treasurer is tasked to assimilate all the information about the museum's financial position. He/She is further tasked with communicating the financial health with various stakeholders of the Museum. Treasurer is also in charge of fund raising for the Museum.

The Finance Committee is established by the Museum Management to monitor and provide guidance on the organizations' financial status by analyzing financial reports. The Committee, made of main stake holders and decision makers, closely works with treasurer on budget preparation that the Board of Trustees then approves. The Financial Committee ensures that the financial decision of the Museum aligns with its vision and oversee its implementation.

An external audit committee or a company is hired to oversee the integrity of the Museum's financial management and financial reporting. It ensures the independence of the annual audit. Its ultimate purpose is to deter or detect financial mismanagement or fraud.

● *Budgeting*

Budget is a quantitative expression of financial planning prepared in advance, essentially a table of projected figures for revenue and expenses for the museum's activities. Under the supervision of the Treasurer, the budget process should be carried by different departments consolidated to achieve Museum's vision, mission and purpose.

The 4 steps of the budget preparation should be followed at least on a quarterly basis to better manage finances - preparation, approval, execution, and audit & evaluation.

● *Revenue sources*

Self-sustainability must be a goal for a museum to be independent of outside funding for operations. Self-sustainability is achieved by innovatively exploring ways of earning income through various programmes and events, supplementing general admissions and operations. Depending on the size, facility, staff and other factors, the common sources for revenue for a museum are:

1. General admissions
2. Special tickets for short/special exhibitions
3. Café or restaurant
4. Shop/Store to sell mementos and artwork
5. Workshops/Programmes for learning and fun
6. Public events/performances
7. Renting out parts of the space for private events and movie shoots
8. Commercial exhibitions, fairs, and festivals

● *Expenses Management*

Expenses are costs of running a place. The management should always work to integrate new tools and technology to be effective and efficient in operations and development of the museum. Periodic review of expenses allows to look for alternatives in various areas including but not limited to hiring, resource, visitor outreach.

● *Accounting Software*

Use of online or web-based accounting software like Tally, Zoho-Books, Quick-Books, or customized software with inbuild approval system is recommended. Such software will not only reduce yearly reconciliations, but also help generate automatic customized dashboard reports allowing the management to have an overview of the Museum's financial health in one go.

● *Asset Management*

The museum's assets include everything that the museum owns that has an exchange value. Artefacts, equipment, property (including intellectual property), real estate, goodwill (social capital) and other items (tangible and intangible) have an inherent value. While some of the assets have a direct financial value, other may have indirect association. One of the goals of the Museum Management is to maintain the assets and best utilize them for a long-term sustainability of the museum. The financial value of the tangible assets should be periodically evaluated, at least once in 2 years.

Each of the assets has a unique mechanism of valuations. Below is a list of 'types of organizations or individuals' who use different valuation methodologies based on the asset type.

Asset Class	Valuation Organizations
Art/Artefacts	Auction Houses Art Historians
Land/Building	Property Valuers
Equipment	Charted Accountants Accounting Firms.

● *Fund Raising*

It is necessary to establish an effective fundraising program due to the limited ability of most museums to generate significant gate revenue. Fundraising ensures financial sustainability. The successful fundraising differs for each individual institution but will always be based by clearly defining and articulating the objectives and tactics. However, care should be taken when seeking funds for activities involving contemporary communities to ensure that their interests will not be compromised by the associations of potential sponsors.

Some of the fund-raising avenues for a museum:

1. Regular and special grants from central or state government.

2. International Cultural Organizations

3. Corporate sponsorship

4. Corporate Social Responsibility (CSR)

5. Individuals/Family Donations/Endowments

6. Private Public Partnerships (PPP)

Corporate Social Responsibility (CSR)

The term corporate social responsibility (CSR) refers to practices and policies undertaken by corporations intending to have a positive influence on the society. Each organization based on their goals, decide to direct their CSR funds on one of the various areas of CSR activities. CSR funds are generally available in the museum space for (not limited to):

(i) Support artistic practices that are emerging, underrepresented and neglected within the spectrum of theatre, music, and dance.

(ii) Support conservation of built heritage, art, and film with a focus on training of conservators and strengthening preservation practices.

(iii) Support newer methodologies of learning and teaching the arts, while focusing on capacity-building and addressing the gap in employment.

It is important to note CSR is not limited to financial contributions, but CSR also includes pro-bono work, volunteer activities, employee community service days, and many more creative activities. The museum should explore

local, regional, and global organizations who has CSR budgets and whose CSR policies align to that of art and culture. Museums should identify its short and long term needs to approach organizations to tap into their CSR programs in order to help the museum in achieving its objectives. Organizations likes CSRBox, and Sattva Consulting fosters partnerships between corporations and social organisations including museums to achieve their social impact goals effectively.

Individuals/Family Donations/Endowments

Museums across the globe are tapping into the donations from individuals, and families. It becomes imperative of the Museum to encourage individuals and families from the region to contribute to the places of art and culture. Most of the individuals and families donate to such causes for the visibility in the community besides their personal interest in the field of work. To inspire such donations, a presentation deck of past, current, and future activities of the museum should be made. The target audience for the donation should be well researched and identified. Presentations can be sent over email or personally delivered to excite the donors showing them the possibilities of activities that can be achieved with their donation. Donations come through when the donors connect with the museum, which is a gradual continuous process. Depending on the Museum policies, it can offer the donors various benefits including but not limited to:

1) inscribe their names on the exhibition rooms, sites etc.

2) promote their names on social media, press releases etc.

3) invite them to special events, priority tickets to their friends and family.

Public Private Partnerships (PPP)

PPP is a cooperation between the public and private sectors for the development and operation of infrastructure for a wide range of economic activities.

Through PPP, private organizations provide the required support with the costs to build, operate, and manage the museums, heritage monuments, sites, and structures. Based on each situation, a feasibility PPP study must be conducted to understand the possibilities and to reach out to interested stakeholders in various areas of partnerships.

The PPPs for museums must be taken as an effort for its integration into larger economic, social, and environmental development objectives. Preserving the historic cultural heritage of India is extremely difficult. Through public-private partnerships, the private and non-profitable sectors are increasingly playing significant roles in the preservation of museums.

Although the role in a PPP is distributed, the public sector typically retains a dominating position as the project's promoter, leader, and ultimate recipient of its results, notwithstanding any potential negative effects on the associated private parties.

An example for PPP is the collaboration of Jamnalal Bajaj Foundation, and the Municipal Corporation Greater Mumbai (MCGM) in the establishment of Dr. Bhau Daji Lad Mumbai City Museum by the Indian National Trust for Art and Cultural Heritage, (INTACH).

3) Disaster Management

The National Museum of Natural History in Delhi, the Minas Gerais in Brazil, and Barnum's American Museum in New York were all affected by major fire disasters that had caused major destruction of the infrastructure and loss of the museum collection. WHO defines a disaster as 'a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environ mental losses that exceed the ability of the affected community or society to cop using its own resources?
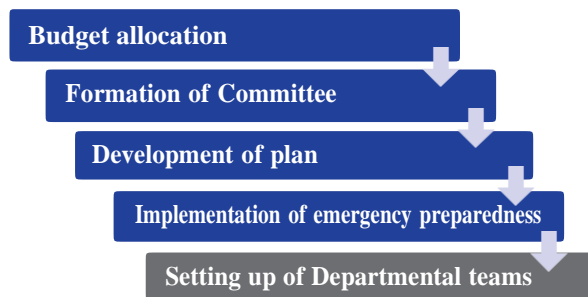

A serious disruption of the functioning of a community or asociety involving widespread human, naterial, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

by: UN - International Strategy for Disaster Management
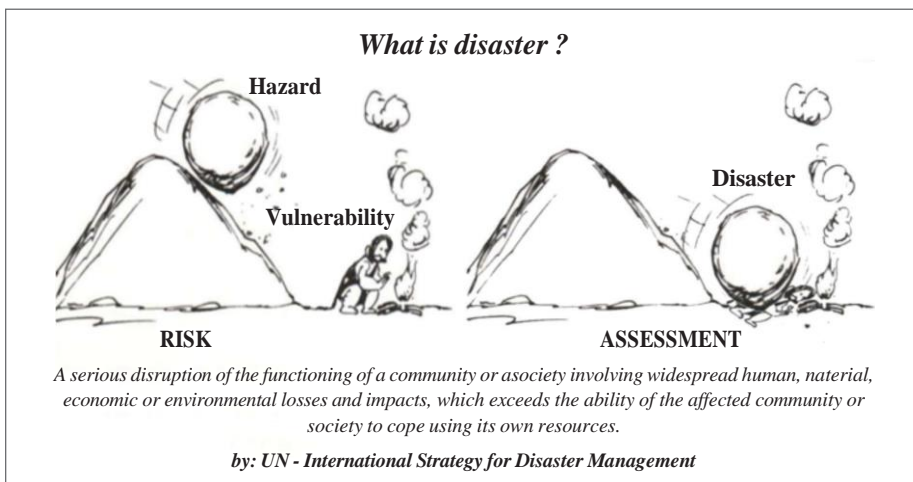
● *Disaster Management Response*

All museums are encouraged to put a Disaster Management Response plan in place to deal with eventualities. This has emerged more critical in the post COVID world, and with the impending climate crisis.

Disaster risk management cycle

The emergency plan must be designed to guide institutions and its staff through the process of developing a team-based emergency preparedness and response programme. The following steps may be incorporating in formulating a policy:

Budget allocation

Formation of Committee

Development of plan

Implementation of emergency preparedness

Setting up of Departmental teams

● *Classification of Disasters*

Different types of disasters pose various kinds of threats to the staff & management, visitors as well as the physical premises of the institution – the understanding of each is critical to making & executing an informed plan of action.

NATURAL	INDUSTRIAL	ACCIDENTAL	HUMAN
Fire	Electrical wire failure	Broken water or sewer pipes	Accidents by individual
Earthquake	Sewer failure	Transport of chemicals or fuels	Vandalism
Slow rising flood	Extreme/ prolonged air pollution	Transporting artifacts	Security system
Dust storms	Chemical spill		Fire suppression system
Pest attacks	Structural collapse		Exits and evacuation points
Environmental conditions and control	Lightening, UV radiation		Condition of roof and guttering
Tsunami	Wet specimen containing inflammable liquids		War
Volcano eruption	Historic objects containing unstable chemicals		Terrorist attack
Cloud burst			Graffiti
Cyclone			
Pandemic			

- *Risk Analysis*

   Risk analysis has been discussed more in detail in the chapter on Conservation & Care. Vulnerable zones depend on type of building, and geographical area. That must be determined by each museum separately. Mitigation measures depend upon the disaster risk.

Risk analysis
↓
Vulnerable zones
↓
Mitigation measures
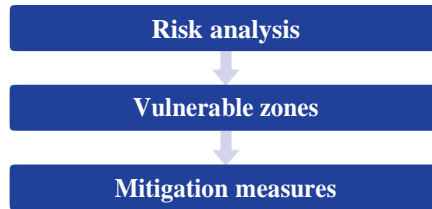
4) Health & Safety

The onus of protecting the staff & volunteers from threat, lies with the institution they occupy. Thus, the management of museums must ensure significant caretaking responsibilities for everyone who enters their property, including the building, grounds, and exhibition spaces. The issues related to the health and safety of staff members, or the public visitor are a subject of assessing risks occasioned by activities within a museum space.

Museums should lay down procedures for reporting accidents, fire drills, exit plans and first-aid administration. The local safety laws must be a component of the safety committee instituted within each museum with an Accident Response Team (ART) operating under the supervision of Director of Security. Trainings for handling crowds, first-aid, cardiopulmonary resuscitation (CPR), handling potential accidents and emergency situations must be mandatory for all staff.

● *Safety policy*

A policy for health and safety in Museum space is to identify the potential for harm. To evaluate the likelihood of such harm and to control any such circumstances where health and safety are at risk. Such a policy is also meant to zero down the severity and frequency of such harm. Gender sensitive campus for safety and security of all within the premises of the Museum.

No discrimination be it in any form be there for any of gender, ethnicity, social class, or other factors. Also, there should be an awareness about gender sensitivity.

● *Safe space for community*

We also need such a policy for people's engagement more with cultural spaces, especially amidst pandemics. Cultural areas heal the wounds of losses in times of crisis. People are inspired to make positive changes and experience healthier

feelings because of their interactions with objects, even in more didactic and passive museum environments. These effects may be more subtly, delicately, or subtly magnified.

A concentric circle of health and safety be enforced for all Museums to follow. A layered approach to safety where priority should begin from convenient admission to the premise, easy parking, and kind & helpful staff.
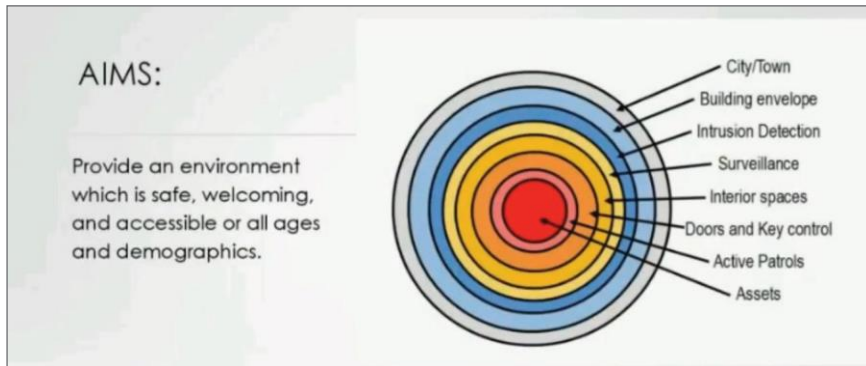
- *Post Pandemic Protocol*

Currently, museums and cultural institutions face unprecedented challenges that affect their operations as an outlying effect of the COVID-19 pandemic.

Source: UNESCO World Museums Report 2021

Separate measures are to be put in place for museum staff & visitors. Safety protocol is to be adhered to strictly to avoid any unwarranted situation at hand for the institution, in terms of liability.

- *Safety protocol for Visitors (drawn from WHO guidelines)*

■ Mandatory Mask use for all visitors
  - High risk visitors: medical mask
  - Low risk visitors: non-medical/ fabric mask

■ Use of mask accompanied by other infection prevention and control (IPC) measures
  - Physical distancing of at least 1 metre
  - Hand hygiene, avoidance of touching one's face
  - Respiratory etiquette using a bent elbow whenever coughing or sneezing
  - Limiting stay in crowded or enclosed spaces

■ Gloves for security staff and in-house cleaners

■ Ensure waste management through proper waste segregation.

■ Monitor visitor footfall
  - Ensure social distancing and safety protocols are never compromised

■ Regular environmental cleaning and disinfection
  - Touch-free Sanitizer Dispensers with Anti-Bacterial Swipes (*both alcohol-free) – placed in each gallery; across entry and exit points; security checks; restrooms

■ Vector-borne diseases
  - Sustainable measures to reduce vector-borne diseases through installation of mosquito screening on windows, doors, and other entry points
  - Unfortunately, simple mosquito screening on windows may reduce the natural ventilation rate significantly

■ Indoor Ventilation and Air-Conditioning
  - Well-designed, maintained and operating system to reduce COVID-19 spread in indoor spaces by diluting the concentration of potentially infectious aerosols through ventilation with outside air and filtration and disinfection of re-circulated air

■ Portable indoor air-filters (or portable indoor air cleaners) to reduce indoor particulate matter (PM2.5) concentration by 40-82%

● *Safety protocol for Staff*

■ Hand hygiene

■ Respiratory hygiene

■ Physical distancing

■ Risk communication, training, and education

■ Gender Sensitivity in the Museum where gender, equality and safety are its prime concern

● *Healing in a museum*

A Space for Physical, Emotional and Social Healing

Museum staff and visitors can experience happier sentiments following their interaction with museum spaces. Procedures for limiting exposure to stressful situations and assisting visitors, staff and volunteers can be encouraged.

Some activities may include:

● Encouraging friends of museums to – interact and engage with each other regularly.

● Collaborative community wall art.

● Community empowerment talks.

● Meditation and stress management workshops.

● Healing spaces to foster survivorship (health ailments, bereavement, tragedies).

● Book clubs and reading sessions.

● Heritage walks and nature tours.

In the aftermath of the COVID-19 pandemic, many activities can be organized online with a potential for exploring more personalized therapeutic sessions as well.

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5) **Security of Collections**

Museums should be safe spaces for people to engage with them and for collections that contribute to their value as cultural institutions and national identity. The

museum collections require appropriate security measures to protect the collections against theft or damage in displays, exhibitions, working or storage areas, and while in transit. Policies should be in place to protect the public and personnel, the collections, and other resources, against natural and man-made disasters.

● *Some Best Practices*

The regular use of upgraded security systems; installation of latest cameras/ surveillance systems; deployment of CISF, armed police, except inside museum galleries; in-house security personnel; ensuring installation of fire-fighting devices/techniques and undertake regular trials, storage plans and regularly re-visit fire-fighting security drills must be undertaken.

● *ICOM Code of Ethics*

According to ICOM, information about the security of the museum or of private collections and locations visited during official duties must be held in strict confidence by museum personnel. Exception to the Obligation for Confidentiality is subject to a legal obligation to assist the police or other proper authorities in investigating possible stolen, illicitly acquired, or illegally transferred property. The governing body should ensure appropriate security to protect collections against theft or damage in displays, exhibitions, working or storage areas and while in transit.

● *Collections & Storage*

The regular management, storage and an upkeep collections is suggested with introduction of digital collections management; verification of physical stocks with registers/database; modernization methods of storage and retrieval to introduce visible storage; development of adequate storage facilities; control atmospheric heat dust, humidity, light and pest in stores; digital photograph storage; upload of entire collections database with images of objects online with details on collection, storage and management.

Storage is also dealt with in detail in the chapters on Architecture, and Conservation & Care.

● *Preparedness (with respect to objects & artefacts)*

In the pre & post disaster situation, the degree of risk preparedness will help to handle the situation with consideration to an artefact and avoid its further deterioration. For this, 3 important actions need to be taken.

■ Response: Decisions and actions taken before, during and after a disaster. This includes immediate relief, rehabilitation, and reconstruction.

■ Recovery: Activities that restore vital life support systems to normalize operating standards and long-term activities that return life to normal.

■ Rehabilitation: The recovered objects need to be kept in a place to avoid its further deterioration.

The in-house staff of a museum must undertake preparedness sessions at frequent intervals, taking into account assessment, preparation, documentation, packing & relocation. This is done to mitigate the effects of a disaster situation.
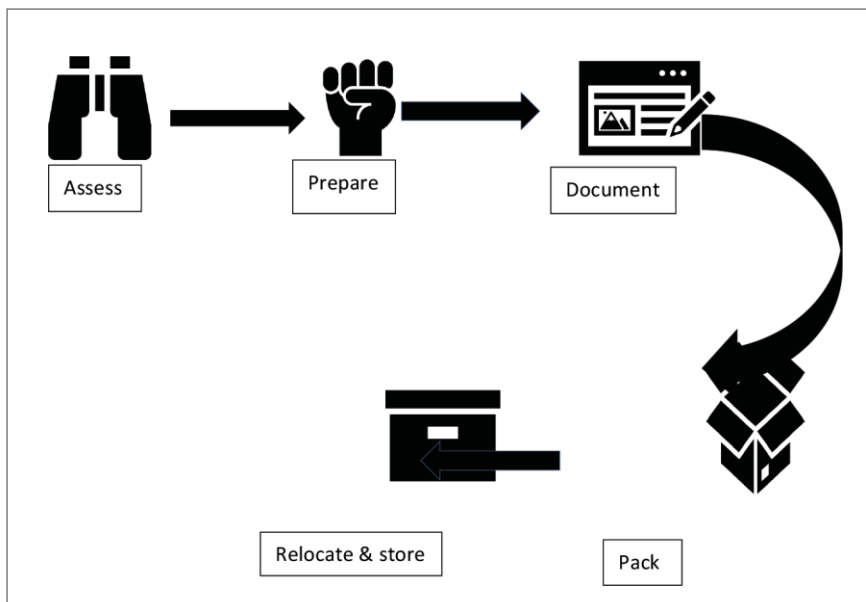
● *Relocation*

Planned relocation is the last alternative in disaster management. All in-situ measures should be explored, if still it is needed to be relocated then proper needs to be followed to eliminate any confusion. The steps include:
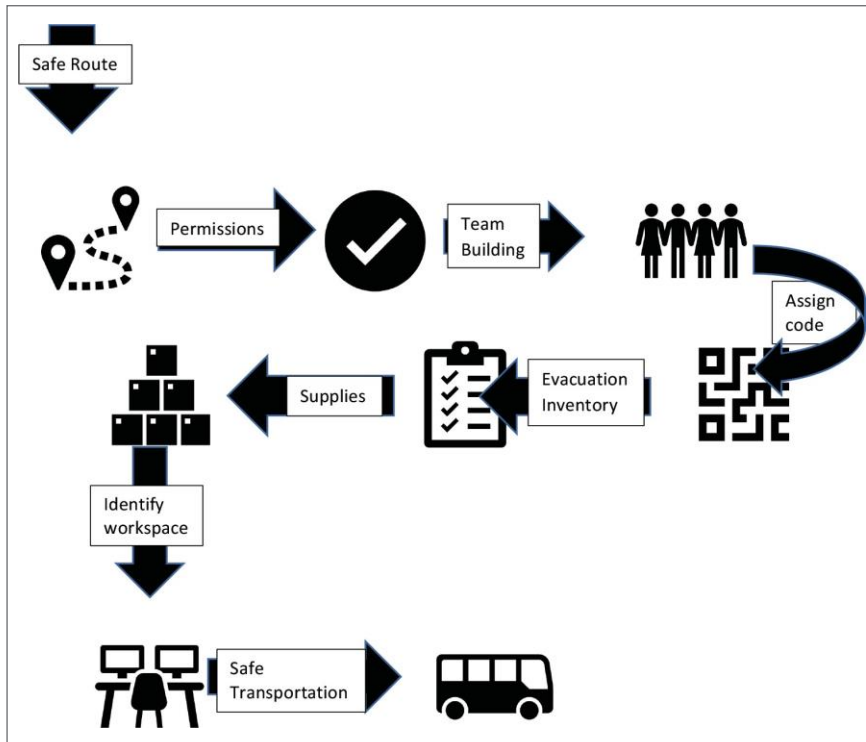
AFTERWORD

In the past, the Ministry of Culture's role in promoting museums has been mostly restricted to providing financial assistance through two schemes – Museum Grant Scheme & Scheme for Promotion of Culture of Science. With a renewed mandate of modernization, upgradation, and establishment of new museums, we aim to bring our institutions closer to international standards of museology and relevant in the 21st century.

Six months after the Global Summit on Reimagining Museums in India, the Ministry of Culture has put together this document as a reference for museum professionals as they develop and revitalize the rapidly changing museum landscape in India. Broadly the areas that needs renewed attention is the management of museums with highest standards of professionalism and best practices; education and audience engagement, development of capacity and skills; and the sustainable growth of museums.

This manual addresses these concerns and how to overcome them. It tackles architecture, conservation, collection management systems, curatorial practices, management, technology, and education and outreach.

Yet, it is not exhaustive.

In editions of this manual that will follow, there are topics that can be added as well as have more focus on certain topics that have been briefly mentioned in this edition. Some of these topics are: Public Private Partnerships, loans and insurance, collaborating with international museums, advocacy, the culture of endowments, and how to create brand value around a museum.

Another aspect that will be explored is how to mould this manual to all different kinds of museums along with an examination of the different kinds of museums and the special attention and adaptations of the manual that they would require. There would be chapters on Science museums, contemporary art museums, art galleries, natural history museums, private collections, site museums, interpretation centres, etc.

Finally, the next edition would address education in two avenues. The first is connecting museums to school syllabi and using them as spaces for interactive learning. The second is developing strong institutions and curriculum in colleges and universities to teach subjects likes museum curation, conservation, history of art, art handling, etc to produce specialists in the field that can further help develop the vast scope of museums in India.

Revamping and developing new museums requires professional expertise and multi-disciplinary skill sets. Specialists from the fields of archaeology, museology, history, design, restoration, conservation, architecture, Information- technology, management, finance, and the various other industries support the setting up and running of museums. At this juncture it is essential to facilitate strategic partnerships and collaborations, capacity building for heritage professionals, and develop a robust network of stakeholders to engage in this sector. It is hoped that this handbook helps in a small way in building that endeavour.

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